

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

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**ORDER NO. R5-2008-XXXX
NPDES NO. CA0004596**

**WASTE DISCHARGE REQUIREMENTS FOR THE
STATE OF CALIFORNIA, DEPARTMENT OF FISH AND GAME
MT. SHASTA FISH HATCHERY
SISKIYOU COUNTY**

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	State of California, Department of Fish and Game
Name of Facility	Mt. Shasta Fish Hatchery
Facility Address	3 North Old Stage Road, Mt. Shasta, California 96067
	Siskiyou
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge.	

The discharge by the State of California, Department of Fish and Game from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Points

Discharge	Effluent Description	Discharge Latitude	Discharge Longitude	Receiving Water
001	Settling Pond Discharge	41°, 18', 24" N	122°, 19', 41" W	Cold Creek
002	Pond 38 Discharge	41°, 18', 21" N	122°, 19', 50" W	Wagon Creek
003	Percolation Pond	41°, 18', 22" N	122°, 19', 50" W	Groundwater

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	<Adoption Date>
This Order shall become effective on:	<Effective Date>
This Order shall expire on:	<Expiration Date>
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	180 days prior to the Order expiration date

IT IS HEREBY ORDERED, that Order No. **R5-2004-0116** is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **<Adoption Date>**.

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	State of California Department of Fish and Game
Name of Facility	Mt. Shasta Fish Hatchery
Facility Address	3 North Old Stage Road
	Mt. Shasta, California 96067
	Siskiyou County
Facility Contact, Title, and Phone	James Adams, Fish Hatchery Manager II, 530-926-2215
Mailing Address	Same
Type of Facility	Fish Hatchery
Facility Design Flow	13.8 million gallons per day

II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Regional Water Board), finds:

A. Background. The State of California Department of Fish and Game (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2004-0116 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0004596. The Discharger submitted a Report of Waste Discharge, dated 14 May 2008, and applied for a NPDES permit renewal to discharge up to 13.8 million gallons per day of untreated wastewater from Mt. Shasta Fish Hatchery, hereinafter Facility. The application was deemed complete on 17 June 2008. Regional Water Board staff conducted a site visit on 29 July 2008 to observe operations and collect additional data to develop permit limitations and conditions.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates a fish hatchery. Based on the ROWD, the Facility has an annual production of 100,000 pounds (lbs) of rainbow trout, 6,000 lbs of brown trout, and 4,000 lbs of brook trout. Annual Reports for the last two years report a total production of 128,000 lbs of fish produced and 210,000 lbs of food used in 2006, and 103,000 lbs of fish produced and 168,000 lbs of food used in 2007. The water supply enters a settling pond for pretreatment prior to hatchery use. The Discharger currently discharges an average of 11.64 mgd of fish hatchery flow-through wastewater with a design maximum of 13.8 mgd. An average of 10.67 mgd of flow-through hatchery wastewater from Building B, the earthen and concrete raceways,

and the spawning houses enters one of two settling ponds prior to discharging to Cold Creek (EFF-001). The wastewater flows through private property with grazing, private impoundments, and other agriculture uses before entering Cold Creek approximately one-half mile downstream. Approximately 0.97 mgd of wastewater from Building E and a rearing pond (Pond X) enters a single settling pond (Pond 38) prior to discharge to Wagon Creek (EFF-002). The Discharge flows across a private agricultural property prior to discharge to a private impoundment called Brown's Lake. The Nursery Tanks have an overflow channel which discharges to Pond 38.

Domestic sewage from the hatchery buildings and private residences is discharged to septic tank/leachfield systems. Hatchery Building B and the shop have separate septic tanks with a common leachfield. The museum and an adjacent residence share a common septic tank/leachfield. The private residence adjacent to Pond X has a separate septic tank/leachfield. The remaining five residences and meat house have three septic tanks with a common leachfield.

Attachment C provides a flow schematic of the Facility.

- C. Legal Authorities.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).
- D. Background and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.
- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR)¹ require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Effluent Limitations Guidelines and Standards for the Concentrated Aquatic Animal Production Point Source Category in Part 451 and Best Professional Judgment

¹ All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

(BPJ) in accordance with Part 125, section 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

- G. Water Quality-based Effluent Limitations.** Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

- H. Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised October 2007), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. The Basin Plan does not specifically identify beneficial uses for Cold Creek and Wagon Creek, but does identify present and potential uses for Lake Siskiyou, to which Wagon Creek and Cold Creek are tributary.

The beneficial uses of Lake Siskiyou are water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater aquatic habitat (WARM), cold freshwater aquatic habitat (COLD), wildlife habitat (WILD), potentially cold spawning habitat (SPWN – COLD) and, pursuant to Resolution No. 88-63, municipal and domestic supply (MUN). The Basin Plan on page II-1.00 states: "Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning..." and with respect to disposal of wastewaters states that "disposal of wastewaters is [not] a prohibited use of waters of the State' it is merely a use which cannot be satisfied to the detriment of beneficial uses." In reviewing whether certain existing and/or potential uses of Lake Siskiyou apply to Wagon and Cold Creeks, the Regional Board has considered that the quality of water in Wagon and Cold Creeks affects the water quality downstream in Lake Siskiyou. Thus, the Regional Board finds that the beneficial uses identified in the Basin Plan for Lake Siskiyou are applicable to Wagon and Cold Creeks.

The beneficial uses of the underlying groundwater are municipal and domestic supply (MUN), industrial service supply (IND), industrial process supply (PRO) and agricultural supply irrigation (AGR).

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 002	Cold Creek Wagon Creek and groundwaters	<u>Existing (surface water):</u> Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms, warm and cold (MIGR); and wildlife habitat (WILD).
003		<u>Existing (groundwater):</u> Municipal and domestic supply (MUN), agricultural supply, including irrigation and stock watering (AGR), industrial service supply (IND), and industrial process supply (PRO).

- I. National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.
- J. State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
- K. Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a

narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See *In the Matter of Waste Discharge Requirements for Avon Refinery* (State Board Order WQ 2001-06 at pp. 53-55). See also *Communities for a Better Environment et al. v. State Water Resources Control Board*, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was September 25, 1995 (See Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or 18 May 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does not include compliance schedules, interim effluent limitations, and/or interim discharge specifications.

- L. Alaska Rule.** On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes. (40 CFR 131.21; 65 Fed. Reg. 24641 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and WQBELs for individual pollutants. The technology-based effluent limitations consist of the requirements contained in 40 CFR Part 451 and restrictions on the flow rate and total suspended solids. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on 1 May 2001. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. Antidegradation Policy. 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

O. Salinity. The project may increase total dissolved minerals and increase the electrical conductivity of Cold, Wagon and Big Springs Creeks. The amount of salinity increase in the receiving water is limited via a chloride effluent limitation and the effluent flow limitation. This permit requires the Discharger prepare a salinity evaluation and minimization plan.

P. Anti-Backsliding Requirements. Section 303(d)(4) and sections 402(o)(2) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. All effluent limitations in this Order are at least as stringent as the effluent limitations in Order No R5-2004-0116.

- Q. Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
- Q. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.
- R. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the Fact Sheet.
- S. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.B, IV.C, V.B, and VI.C of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- T. Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet.
- U. Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

III. DISCHARGE PROHIBITIONS

- A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.
- B. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G and I.H (Attachment D).
- C. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.
- D. The discharge of hazardous or toxic substances including cleaning chemicals, solvents, oil, grease or other petroleum products, is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Points 001 and 002

1. Final Effluent Limitations – Discharge Points 001 and 002

The Discharger shall maintain compliance with the following effluent limitations at Discharge Points 001 and 002 with compliance measured at Monitoring Locations REC-001 and REC-002 as described in the attached MRP (Attachment E):

- a. The Discharger shall maintain compliance with the effluent limitations specified in Table 6:

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow ¹	mgd	--	13.8	--	--
pH	standard units	--	--	6.5	8.5
Total Suspended Solids ²	mg/L	5	15	--	--
	lbs/day ³	580	1,730	--	--
Settleable Solids ^{2,4}	ml/L	0.1	0.2	--	--
Copper (Total Recoverable)	µg/L	1.9	3.9	--	--
Formaldehyde	mg/L	0.65	1.3	--	--
Chloride	mg/L	106	--	--	--

¹ Total of D001 and D002.

² Effluent limitations are net values (increase over source water).

³ Based on a design flow of 13.8 mgd.

⁴ Applicable to D001 and D002 only.

- b. The Discharger shall minimize the discharge of Biochemical Oxygen Demand and Total Suspended Solids through the implementation of the best management practices established in Special Provision VI.C.3 of this Order.

B. Land Discharge Specifications – Domestic Wastewater and Discharge Point 003

1. **Domestic Sewage.** The domestic sewage discharge shall be maintained within the designated disposal areas at all times, and there shall be no surfacing effluent or direct discharge to surface waters or surface water courses.
2. **Percolation Pond Freeboard.** Freeboard shall not be less than one foot (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the pond, no overflow of the pond occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Cold and/or Wagon Creeks:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than ten percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
 - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
 - c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5, raised above 8.5, nor changed by more than 0.5 units.
9. **Pesticides:**

- a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
- b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
- c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer;
- d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR §131.12.);
- e. Pesticide concentrations to exceed the lowest levels technically and economically achievable
- f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15;
- g. Thiobencarb to be present in excess of 1.0 µg/L;
- h. The direct or indirect discharge of diazinon into the Sacramento and Feather Rivers or any sub-watershed if, in the previous year (July-June), any exceedance of the diazinon water quality objectives occurred.

10. Radioactivity:

- a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
- b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

11. Salinity. Salinity (chloride, electrical conductivity, TDS, etc. objectives [for Sac/SJ Basins, see page III-6.00].

12. Suspended Sediments. The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

13. Settleable Substances. Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

14. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.
15. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
16. **Temperature.** The natural temperature to be increased by more than 5°F.
17. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
18. **Turbidity.** The turbidity to increase as follows:
 - a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs;
 - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs;
 - c. More than 10 NTU where natural turbidity is between 50 and 100 NTUs;
 - d. More than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

1. The discharge shall not cause the groundwater to be degraded, to exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.
2. The discharge shall not cause the groundwater to contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
3. The discharge shall not cause the groundwater to exceed a most probable number of total coliform organisms of 2.2/100 mL over any 7-day period.
4. The discharge shall not cause toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. This limitation applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions (Federal NPDES standard conditions from 40 CFR Part 122) included in Attachment D of this Order.
2. The Discharger shall comply with the following provisions:
 - a. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - i. violation of any term or condition contained in this Order;
 - ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;
 - iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
 - iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- *New regulations.* New regulations have been promulgated under Section 405(d) of the Clean Water Act, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional Water Board's own motion.

- b. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Regional Water

Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

- c. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
 - i. contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
 - ii. controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

- d. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- e. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- f. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.
- g. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- h. Safeguard to electric power failure:
 - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
 - ii. Upon written request by the Regional Water Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability

of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Water Board.

- iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.
- i. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision VI.A.2.m of this Order.

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Regional Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

- j. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical

reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

- k. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.
- l. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by the Standard Provision contained in Attachment D section V.E.1. [40 CFR 122.41(l)(6)(i)].
- m. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- n. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the CWC. Transfer shall be approved or disapproved in writing by the Executive Officer.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. **Chemical and Aquaculture Drug Use.** This permit authorizes the discharge of oxytetracyclin, penicillin G, florfenicol, amoxycillin trihydrate, erythromycin, Romet-30, MS-222, PVP Iodine, Formalin, hydrogen peroxide, potassium permanganate, copper sulfate, sodium chloride, acetic acid, and chloramine-T to Cold, Wagon and Big Springs Creeks in accordance with the effluent limitations, BMP plan requirements, Monitoring and Reporting requirements and other conditions of this permit. Other aquaculture chemicals or drugs that may enter the wastewater discharge can only be authorized if the Discharger submits a RWD to the Regional Water Board that contains the following supplemental information, and the Regional Board has issued waste discharge requirements or this Order has been opened and revised:
 - i. The common name(s) and active ingredient(s) of the drug or chemical proposed for use and discharge.
 - ii. The purpose for the proposed use of the drug or chemical (i.e. list the specific disease for treatment and specific species for treatment).
 - iii. The amount proposed for use and the resulting calculated concentration in the discharge.
 - iv. The duration and frequency of the proposed use.
 - v. Material Safety Data Sheets and available toxicity information.

- vi. Any related Investigational New Animal Drug (INAD), New Animal Drug Application (NADA) information, extra-label use requirements and/or veterinarian prescriptions.

The Discharger shall also submit acute toxicity test information on any new chemical or drug in accordance with methods specified in EPA600/4-90/027, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, using *Ceriodaphnia dubia* to determine the NOAEL, and LOAEL.

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the Facility. The plan shall be completed and submitted to the Regional Water Board **within 9 months of the effective date of this Order** for approval by the Executive Officer.
- b. **Best Management Practices and Pollution Prevention as Required in 40 CFR 451.11**

Within 60-days of adoption of this Order, the Discharger shall certify in writing to the Regional Water Board that it has developed a Best Management Practices (BMP) plan as required by 40 CFR Part 451. The Discharger shall develop and implement the BMP plan to prevent or minimize the generation and discharge of wastes and pollutants to the waters of the United States and waters of the State. The Discharger shall develop and implement a BMP plan consistent with the following objectives:

- i. Solids control. The permittee must:
 - a) Employ efficient feed management and feeding strategies that limit feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth in order to minimize potential discharges of uneaten feed and waste products to waters of the U.S.
 - b) In order to minimize the discharge of accumulated solids from settling ponds and basins and production systems, identify and implement procedures for routine cleaning of rearing units and off-line settling basins, and procedures to minimize any discharge of accumulated solids during the inventorying, grading and harvesting aquatic animals in the production system.
 - c) Remove and dispose of aquatic animal mortalities properly on a regular basis to prevent discharge to waters of the U.S., except in cases where

the permitting authority authorizes such discharge in order to benefit the aquatic environment.

- ii. Materials storage. The permittee must:
 - a) Ensure proper storage of drugs, pesticides, and feed in a manner designed to prevent spills that may result in the discharge of drugs, pesticides or feed to waters of the U.S.
 - b) Implement procedures for properly containing, cleaning, and disposing of any spilled material.
- iii. Structural maintenance. The permittee must:
 - a) Inspect the production system and the wastewater treatment system on a routine basis in order to identify and promptly repair any damage.
 - b) Conduct regular maintenance of the production system and the wastewater treatment system in order to ensure that they are properly functioning.
- iv. Recordkeeping. The permittee must:
 - a) In order to calculate representative feed conversion ratios, maintain records for aquatic animal rearing units documenting the feed amounts and estimates of the numbers and weight of aquatic animals.
 - b) Keep records documenting the frequency of cleaning, inspections, maintenance and repairs.
- v. Training. The permittee must:
 - a) In order to ensure the proper clean-up and disposal of spilled material adequately train all relevant facility personnel in spill prevention and how to respond in the event of a spill.
 - b) Train staff on the proper operation and cleaning of production and wastewater treatment systems including training in feeding procedures and proper use of equipment.

The Discharger shall ensure that its operations staff are familiar with the BMP Plan and have been adequately trained in the specific procedures it requires.

4. Construction, Operation and Maintenance Specifications

- d. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy these specifications.
- e. Any proposed change in sludge disposal practice, shall be reported to the Executive Officer at least **90 days** in advance of the change.

5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

6. Other Special Provisions

- a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory and certification requirements in the Federal Standard Provisions (Attachment D, Section V.B.) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

7. Compliance Schedules

- a. This Order contains new final Effluent Limitations for copper based on California Toxics Rule criteria for the protection of freshwater aquatic life. The final Effluent Limitation for copper is applicable on the Effective Date of this permit. No compliance schedule is given for copper as the Discharger is required to meet all Effluent Limitations on the effective date of this permit.

VII. COMPLIANCE DETERMINATION – NOT APPLICABLE

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Practicable Treatment or Control (BPTC)

BPTC is a requirement of State Water Resources Control Board Resolution 68-16 – “Statement of Policy with Respect to Maintaining High Quality of Waters in California” (referred to as the “Antidegradation Policy”). BPTC is the treatment or control of a discharge necessary to assure that, “(a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.” Pollution is defined in CWC Section 13050(I). In general, an exceedance of a water quality objective in the Basin Plan constitutes “pollution”.

Bioaccumulative

Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic Pollutants

Those substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV)

CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of

the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA)

ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration

The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries.

Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters

All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)

The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median

The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)

ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)

Sample results less than the laboratory's MDL.

Ocean Waters

The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention

Pollution prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL)

RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System

The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water

Any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

Standard Deviation (σ)

Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;

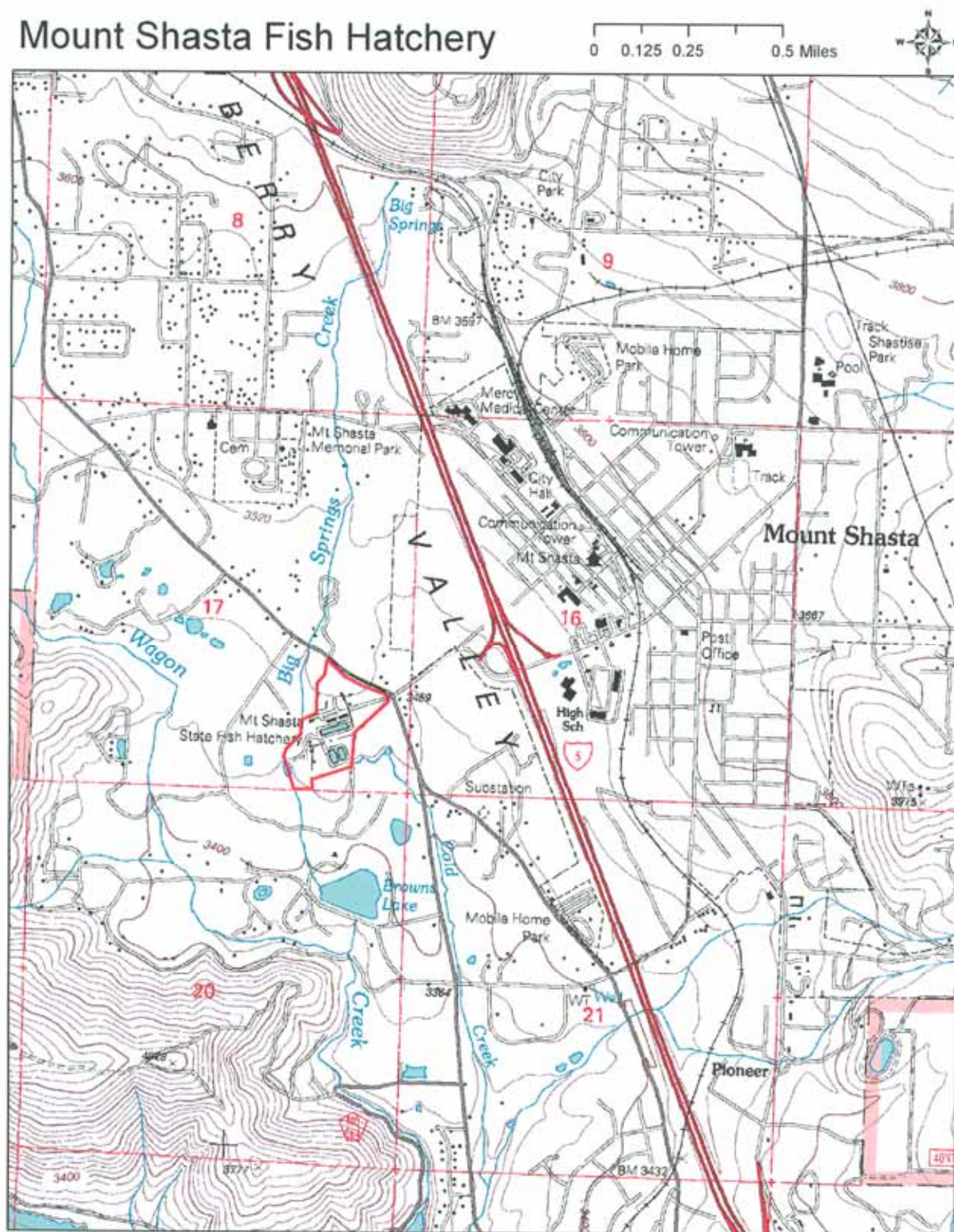
μ is the arithmetic mean of the observed values; and

n is the number of samples.

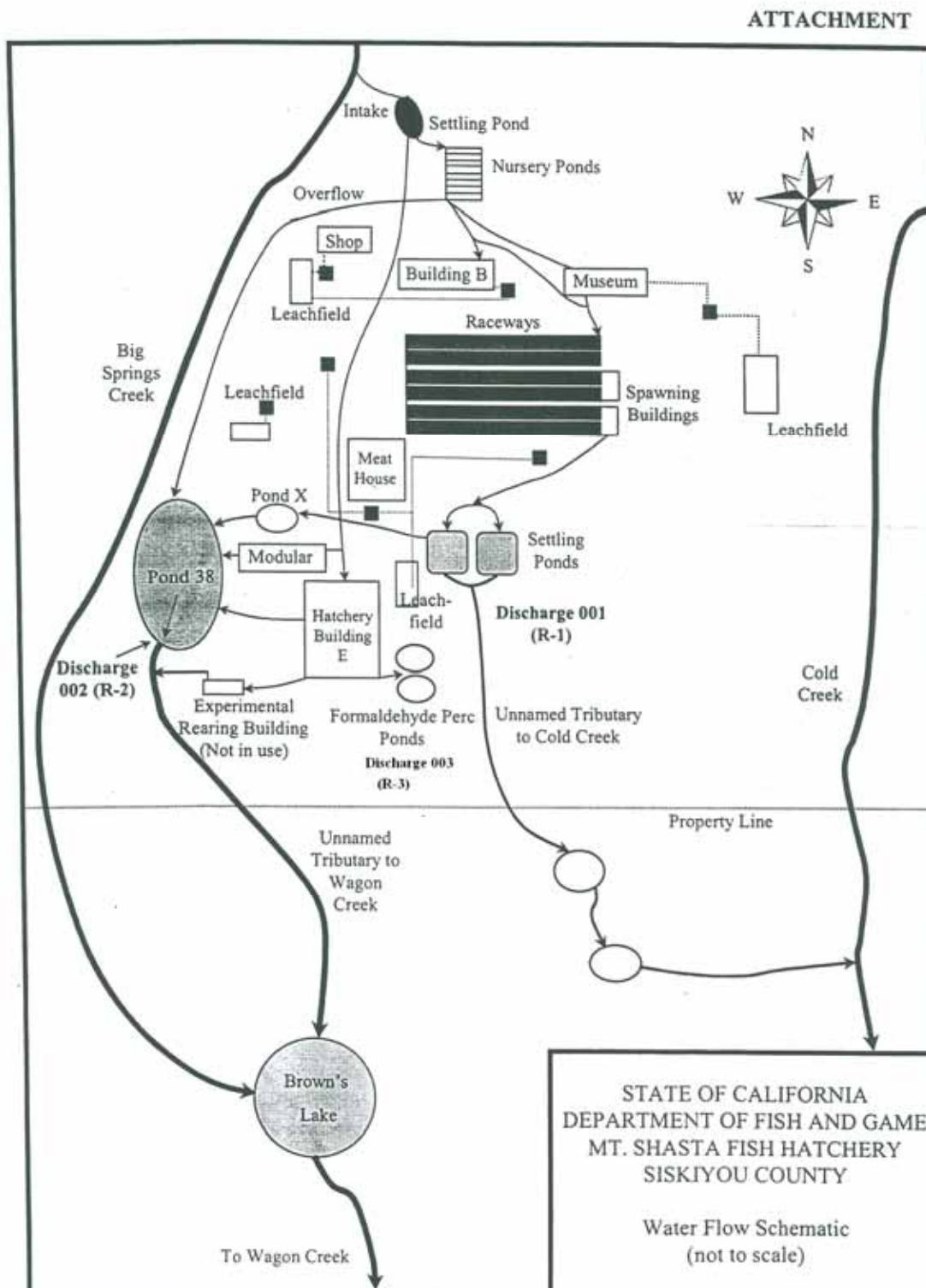
Toxicity Reduction Evaluation (TRE)

TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR 122.41(a))
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR 122.41(a)(1))

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR 122.41(c))

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR 122.41(d))

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR 122.41(e))

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR 122.41(g))

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR 122.5(c))

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR 122.41(i); CWC section 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR 122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR 122.41(i)(4))

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i))
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii))
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR 122.41(m)(2))

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR 122.41(m)(4)(i)(A));
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR 122.41(m)(4)(i)(B)); and
 - c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR 122.41(m)(4)(i)(C))
4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR 122.41(m)(4)(ii))
5. Notice
 - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR 122.41(m)(3)(i))
 - b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR 122.41(m)(3)(ii))

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR 122.41(n)(1))

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR 122.41(n)(2))

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 CFR 122.41(n)(3)(ii));
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR 122.41(n)(3)(iii)); and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR 122.41(f))

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR 122.41(b))

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR 122.41(l)(3); 122.61)

III. STANDARD PROVISIONS – MONITORING

- A.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR 122.41(j)(1))
- B.** Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR 122.41(j)(4) and 122.44(i)(1)(iv))

IV. STANDARD PROVISIONS – RECORDS

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR 122.41(j)(2))

B. Records of monitoring information shall include:

- 1. The date, exact place, and time of sampling or measurements (40 CFR 122.41(j)(3)(i));
- 2. The individual(s) who performed the sampling or measurements (40 CFR 122.41(j)(3)(ii));
- 3. The date(s) analyses were performed (40 CFR 122.41(j)(3)(iii));
- 4. The individual(s) who performed the analyses (40 CFR 122.41(j)(3)(iv));
- 5. The analytical techniques or methods used (40 CFR 122.41(j)(3)(v)); and
- 6. The results of such analyses. (40 CFR 122.41(j)(3)(vi))

C. Claims of confidentiality for the following information will be denied (40 CFR 122.7(b)):

- 1. The name and address of any permit applicant or Discharger (40 CFR 122.7(b)(1)); and
- 2. Permit applications and attachments, permits and effluent data. (40 CFR 122.7(b)(2))

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); CWC 13267)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR 122.41(k))
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR 122.22(a)(3))
3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR 122.22(b)(1));
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR 122.22(b)(2)); and
 - c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR 122.22(b)(3))
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall

operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 122.22(c))

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 CFR 122.22(d))

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR 122.22(l)(4))
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i))
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR 122.41(l)(4)(ii))
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR 122.41(l)(4)(iii))

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR 122.41(l)(5))

E. Two-Hour and Twenty-Four Hour Reporting

1. The Discharger shall report notify the Office of Emergency Services of any noncompliance that may endanger health or the environment within 2 hours from the time the Discharger becomes aware of the circumstances. Any information shall be provided by telephone or fax within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR 122.41(l)(6)(i))
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):
 - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(A))
 - b. Any upset that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(B))
3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR 122.41(l)(6)(iii))

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR 122.41(l)(1)(ii))
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii))

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 CFR 122.41(l)(2))

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR 122.41(l)(7))

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR 122.41(l)(8))

VI. STANDARD PROVISIONS – ENFORCEMENT

- A.** The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 CFR 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR 122.42(a)(1)):
 - a. 100 micrograms per liter (µg/L) (40 CFR 122.42(a)(1)(i));
 - b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR 122.42(a)(1)(ii));

- c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(1)(iii)); or
 - d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 CFR 122.42(a)(1)(iv))
- 2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR 122.42(a)(2)):
 - a. 500 micrograms per liter ($\mu\text{g/L}$) (40 CFR 122.42(a)(2)(i));
 - b. 1 milligram per liter (mg/L) for antimony (40 CFR 122.42(a)(2)(ii));
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(2)(iii)); or
 - d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 CFR 122.42(a)(2)(iv))

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Title 40 of the Code of Federal Regulations (CFR), section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

- A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.
- B. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- C. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the Department of Public Health (DPH; formerly the Department of Health Services). In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.
- D. All analyses shall be performed in a laboratory certified to perform such analyses by DPH. Laboratories that perform sample analyses shall be identified in all monitoring reports.
- E. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices. Calculated flows shall be calculated consistent with accepted engineering practices.

- F. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.
- G. Laboratories analyzing monitoring samples shall be certified by DPH, in accordance with the provision of CWC section 13176, and must include quality assurance/quality control data with their reports.
- H. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.
- I. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- J. The results of all monitoring required by this Order shall be reported to the Regional Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	Location representative of influent water to the process (41°, 18', 34" N, 122°, 19', 44" W)
001	EFF-001	Settling pond discharge to Cold Creek tributary (41°, 18', 24" N, 122°, 19', 41" W)
002	EFF-002	Pond 38 discharge to Wagon Creek tributary (41°, 18', 21" N, 122°, 19', 50" W)
003	PND-003	Hatchery building discharge to the percolation pond (41°, 18', 22" N, 122°, 19', 50" W)
--	RSW-001	Downstream of Discharge 001
--	RSW-002	Downstream of Discharge 002

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

- The Discharger shall monitor influent to the facility at INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Hardness	mg/L	Grab	weekly during CuSO ₄ use ¹	
pH	--	Grab	1/month	
Total Suspended Solids	mg/L	Grab	1/month	
Settleable Matter	mL/L	Grab	1/month	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/month during salt use ²	
Temperature	C	Grab	1/month	
Dissolved Oxygen	mg/L	Grab	1/month	
Turbidity	NTU	Grab	1/month	

¹ Samples shall coincide with copper usage. Hardness and pH shall be sampled and reported with the copper results.

² Samples shall be collected during months of sodium chloride usage.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations EFF-001 and EFF-002 (Discharges 001 and 002)

1. **Discharge Flow Rates.** The Discharger shall monitor the discharge flow rates at EFF-001 and EFF-002 when there is a discharge. Flows shall be reported in millions of gallons per day (mgd) and shall be calculated or measured and recorded weekly.
2. **Discharge Water Quality.** Effluent samples shall be collected from EFF-001 and EFF-002. Effluent samples shall be representative of the volume and quality of the discharge. Effluent samples shall be collected during or immediately following raceway cleaning or administration of drug or chemical treatments and must be representative of the volume and quality of the discharge at the time when representative levels of solids, drugs, chemicals, or other pollutants are present in the discharge. Time of collection of samples shall be recorded. Effluent monitoring shall include the following:

Table E-3. Effluent Monitoring (EFF-001 and EFF-002)

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Suspended Solids (TSS)	mg/L	Grab	1/month	1
Net TSS (effluent minus influent)	mg/L	Net Calculation	1/month	1
Settleable Solids	mg/L	Grab	1/month	1
pH	--	Grab	1/month during CuSO ₄ use ²	1
Hardness	mg/L	Grab	1/month during CuSO ₄ use ²	1
Copper (Total and Dissolved)	µg/L	Grab	1/month during CuSO ₄ use ²	1
Chloride	mg/L	Grab	1/month during salt use ³	1
Electrical Conductivity	µmhos/cm	Grab	1/month during salt use ³	1
Formaldehyde	mg/L	Grab	1/month during Formalin use ⁴	1
Hydrogen peroxide	mg/L	Grab	1/month during H ₂ O ₂ use	1
Potassium permanganate	mg/L	Grab	1/month during KMnO ₄ use	1
PVP Iodine	mg/L	Grab	1/month during Iodine use	1
Chloramine-T	mg/L	Grab	1/month during Chloramine-T use	1
Priority Pollutants	µg/L	Grab	1/5 years	1

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR sections 136. For priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP. Where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board. If no approved methods are available, effluent concentrations may be determined by calculation as approved by the Executive Officer.

² In months when copper sulfate is added to the waters of the Facility, total recoverable copper concentration shall be measured during copper sulfate use. The highest acceptable ML for calibration purposes is 0.5 µg/l. The sample shall be collected during the time of peak discharge of copper, at least one hour after start of treatment. Effluent hardness and pH shall be measured at the same time as total recoverable copper.

³ In months when sodium chloride is added to waters of the Facility, chloride concentration shall be measured during sodium chloride use.

⁴ In months when Formalin is added to the waters of the Facility, formaldehyde concentration shall be measured during Formalin use.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS – NOT APPLICABLE

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Location PND-003 (Percolation Pond)

1. **Discharge Flow Rate.** The Discharger shall monitor the discharge flow rates at PND-003 (the discharge point into the percolation pond) when there is a discharge. Flows shall be reported in millions of gallons per day (mgd) and shall be calculated or measured and recorded weekly.
2. **Discharge Water Quality.** Effluent samples shall be collected from PND-003. Effluent samples shall be representative of the volume and quality of the discharge. Effluent samples shall be collected on a monthly basis during Formalin treatments and analyzed for formaldehyde. Time of collection of samples shall be recorded. Sampling is not required during months when no Formalin is used.

Pond Freeboard. Percolation pond freeboard shall be measured monthly to the nearest 0.1 foot during the months when formaldehyde-containing water is discharged to the percolation ponds and ending one calendar month after the last seasonal discharge of formaldehyde-containing water to the percolation pond.

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001 AND RSW-002

1. Receiving water samples shall be collected at the same time as the water supply samples. Receiving water monitoring shall include at least the following:

<u>Station</u>	<u>Description</u>
RSW-001	Downstream of EFF-001
RSW-002	Downstream of EFF-002

Table E-4. Receiving Water Monitoring Requirements RSW-001 and RSW-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/month	
Temperature	°C	Grab	1/month	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/month ¹	
pH	--	Grab	1/month	
Turbidity	NTU	Grab	1/month	

¹ When salt is added to waters of the facility.

Parameters shall be measured at all sampling stations each month.

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions through the reaches bounded by Stations RSW-001 and RSW-002. Attention shall be given to the presence or absence of:
 - a. Floating or suspended matter
 - b. Discoloration
 - c. Bottom deposits
 - d. Aquatic life
 - e. Visible films, sheens, or coatings
 - f. Fungi, slimes, or objectionable growths
 - g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

IX. OTHER MONITORING REQUIREMENTS

A. Septic Tank Monitoring And Inspections

Septic tank maintenance inspections shall be performed at least once per year. Information concerning inspections and maintenance activities (including, but not limited to, pumping, replacement, and repairs) shall be included in the monitoring reports submitted to the Regional Board.

B. Leachfield Monitoring

The Discharger shall inspect leachfield areas and submit the results in the monthly monitoring report. Monitoring shall include any observations of seeps, erosion, field saturation, ponding liquid, the presence of nuisance and other field conditions.

C. Monthly Drug and Chemical Use Report

The following information shall be submitted for all aquaculture drugs or chemicals used at the Facility:

- a. The name(s) and active ingredient(s) of the drug or chemical.
- b. The date(s) of application.

- c. The purpose(s) for the application.
- d. The method of application (e.g. immersion bath, administered in feed), duration of treatment, whether the treatment was static or flush (for drugs or chemicals applied directly to water), amount in gallons or pounds used, treatment concentration(s), and the flow in cubic feet per second (cfs) in the treatment units.
- e. The total flow through the facility in cubic feet per second (cfs) to the discharge point after mixing with the treated water.
- f. For drugs and chemicals applied directly to water (i.e. immersion bath, flush treatment) and for which effluent monitoring is not otherwise required, the estimated concentration in the effluent at the point of discharge.
- g. The method of disposal for drugs or chemicals used but not discharged in the effluent.

Calculation of Concentration

For drugs or chemicals used in an immersion bath, “drip” treatment, or in other direct application to waters at the facility, use the following formula to calculate concentration (C) at the point of discharge.

C = concentration of chemical or drug at the point of discharge

$C = (\text{treatment concentration}) \times (\text{flow in treatment area}) \div (\text{flow at point of discharge})$

Example: Potassium permanganate concentration

$C = 2.0 \text{ mg/L (KMNO}_4\text{)} \times \frac{0.45 \text{ mgd (flow through treatment area)}}{5.0 \text{ mgd (flow at point of discharge)}}$

$C = 2.0 \text{ mg/L} \times 0.09$

$C = 0.18 \text{ mg/L potassium permanganate at the point of discharge.}$

This information shall be submitted monthly. If the analysis of this chemical use compared with any toxicity testing results or other available information for the therapeutic agent, chemical or anesthetic indicates that the discharge may cause, have the reasonable potential to cause, or contribute to an excursion of a numeric or narrative water quality criterion or objective, the Executive Officer may require site specific whole effluent toxicity (WET) tests using *C.dubia* or this Order may be reopened to include an effluent limitation based on that objective.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this Monitoring and Reporting Program under sections III through IX. The Discharger shall submit SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-5. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Day after permit effective date	All	First day of second calendar month following month of sampling
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	First day of second calendar month following month of sampling
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 1 August 1 November 1 February 1
Annually	January 1 following (or on) permit effective date	January 1 through December 31	February 1
1 / 5 years	Three years after effective date of the permit	During fourth year of permit	Submit with monthly SMR.

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable minimum Reporting Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- Sample results greater than or equal to the ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- Sample results less than the ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
6. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
7. The Discharger shall submit SMRs in accordance with the following requirements:
- a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions.

Identified violations must include a description of the requirement that was violated and a description of the violation.

- c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Regional Water Quality Control Board
Central Valley Region
415 Knollcrest Dr., Suite 100
Redding, CA 96002

C. Discharge Monitoring Reports (DMRs)

1. As described in section X.B.1 above, at any time during the term of this permit, the State Water Board or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.
2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality Cc/o DMR Processing Center 1001 I Street 15 th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

1. **Monthly Drug and Chemical Use Report.** The information listed below shall be submitted for all aquaculture drugs or chemicals used at the Facility. This information shall be reported at monthly intervals and submitted with the monthly self-monitoring reports using the drug and chemical usage report table found in Attachment H of this Order. At such time as the Discharger is required to begin submitting self-monitoring reports electronically, it shall continue to submit paper copies of the monthly drug and chemical use reports to the Regional Water Board.

- a. The name(s) and active ingredient(s) of the drug or chemical.
- b. The date(s) of application.
- c. The purpose(s) for the application.
- d. The method of application (e.g., immersion bath, administered in feed), duration of treatment, whether the treatment was static or flush (for drugs or chemicals applied directly to water), amount in gallons or pounds used, treatment concentration(s), and the flow in cubic feet per second (cfs) in the treatment units.
- e. The total flow through the facility in cubic feet per second (cfs) to the receiving water after mixing with the treated water.
- f. For drugs and chemicals applied directly to water (i.e., immersion bath, flush treatment) and for which effluent monitoring is not otherwise required, the estimated concentration in the effluent at the point of discharge.

The method of disposal for drugs or chemicals used but not discharged in the effluent.

2. **Progress Reports.** As specified in the compliance time schedules required in Special Provisions VI of this Order, progress reports shall be submitted in accordance with the following reporting requirements. At a minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-6. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Salinity Evaluation and Minimization Plan	1 December, annually, after approval of plan

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in the Findings in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	5A470803001
Discharger	State of California Department of Fish and Game
Name of Facility	Mount Shasta Fish Hatchery, Mount Shasta
Facility Address	3 North Old Stage Road
	Mount Shasta, California 96067
	Siskiyou
Facility Contact, Title and Phone	James Adams, Fish Hatchery Manager II, 530-926-2215
Authorized Person to Sign and Submit Reports	Linda Radford, Senior Fish Hatchery Manager, 530-225-2369
Mailing Address	Same
Billing Address	601 Locust Street, Redding, California 96001
Type of Facility	Fish Hatchery, SIC Code 0921
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	N
Reclamation Requirements	Not applicable
Facility Permitted Flow	13.8 mgd
Facility Design Flow	13.8 mgd
Watershed	Sacramento River Basin
Receiving Water	Wagon and Cold Creeks, tributary to Lake Siskiyou, Groundwater
Receiving Water Type	Inland surface water

- A. The State of California Department of Fish and Game (hereinafter Discharger) is the owner and operator of the Mount Shasta Fish Hatchery (hereinafter Facility), a fish hatchery.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B.** The Facility discharges wastewater to ground waters of the Sacramento River basin and to the surface waters of the Cold, Wagon and Big Springs Creeks, waters of the United States, and is currently regulated by Order R5-2004-0116 which was adopted on 10 September 2004 and expires on 1 September 2009.
- C.** The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 14 May 2008. The application was deemed complete on 17 June 2008. Regional Water Board staff conducted a site visit on 29 July 2008 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The California Department of Fish and Game owns and operates the Facility located in Mt. Shasta City, Section 17, T40N, R4W, MDB&M. The Facility lies within the Box Canyon Hydrologic Subarea No. 525.22. Initially constructed in 1888 and modernized in 1975, the fish rearing facilities consist of two egg incubation buildings (Buildings B and E), ten ponds, two earthen and four concrete raceways, and two hundred and sixty troughs. Additional structures include two spawning houses, a meat house, shop/garage, seven private residences, a museum and public rest rooms. The Discharger utilizes water from Big Springs Creek and discharges fish hatchery wastewater to Cold Creek and Wagon Creek. Cold Creek and Wagon Creek are tributaries to Lake Siskiyou, which was formed by a dam on the Sacramento River.

Brown, Rainbow and Eagle Lake trout eggs are harvested from November through March. Approximately 15 million eggs are shipped to other facilities and 6 million eggs are incubated and hatched at the Facility for future production and brood stock use.

The water supply for the Facility comes from Big Springs Creek. The water supply enters a settling pond for pretreatment prior to hatchery use. The Discharger reports that upstream activities create sediment and turbid conditions that impact the water supply to the Facility requiring the pretreatment. The Discharger currently discharges an average of 11.64 mgd of fish hatchery flow-through wastewater with a design maximum of 13.8 mgd. An average of 10.67 mgd of flow-through hatchery wastewater from Building B, the earthen and concrete raceways, and the spawning houses enters one of two settling ponds prior to discharging to Cold Creek (EFF-001). The wastewater flows through private property with grazing, private impoundments, and other agriculture uses before entering Cold Creek approximately one-half mile downstream. Approximately 0.97 mgd of wastewater from Building E and a rearing pond (Pond X) enters a single settling pond (Pond 38) prior to Discharge to Wagon Creek (EFF-002). The Discharge flows across private agricultural property prior to discharging to a private impoundment called Brown's lake.

The Facility is comprised of the following four rearing areas: Hatchery B, Hatchery E, Nursery Tanks, and Raceways.

Hatchery B contains 120 California standard troughs and two deep tanks for rearing eggs and fish. Eggs are incubated in vertical flow hatching jars that reduce the need for drug use over tray hatching systems. Fish are reared in Hatchery B from January to August. Hatchery B is shut down (no water flow) when the fish are removed

Hatchery E contains 132 California standard troughs and two deep tanks for rearing eggs and fish. Hatching jars are used primarily in Hatchery E as space permits to reduce the use of drugs. It also contains 13 vertical stack incubators for egg production. Eggs are treated for fungus abatement by Salt or PVP Iodine. If all 13 stacks are being treated with salt it is possible to use about 55 pounds per day. If all 13 stacks are being treated with PVP Iodine it is possible to use about 130 ounces per day. Formalin has been discontinued for fungus abatement treatment of the eggs. When Hatchery E is empty, water is piped under the hatchery building to maintain a flow of water used for irrigation by adjacent landowner's sough of the hatchery. When the water does not pass through Hatchery E, it does not flow through Pond 38 but is discharged at EFF-002.

Eight 60' x 10' nursery tanks are used to hold fingerlings and future brood stock. Water is piped from the distribution box to the tanks. Wastewater from the nursery tanks is discharged and reused in the raceways. When the tanks are empty the tanks are used to control water flow fluctuations in the intake distribution box and intake settling pond.

Six raceways (two earthen and four concrete) are utilized for production of catchable, sub-catchable, and brood stock trout. An average total flow of 6-7 cfs flows through the earthen ponds then is reused in the four concrete raceways and is discharged at EFF-001 after flowing through two parallel settling ponds. Typical hatchery thinning and grading practices are used to maintain healthy fish to reduce chemical use.

Chemicals and drugs are used at the Facility to treat fish directly for parasites, fungi, and bacteria as well as to clean rearing raceways in order to reduce the spread of disease among the confined fish population. Chemicals currently used at the Facility include sodium chloride (salt), PVP Iodine (Argentyne[®]), hydrogen peroxide, and oxytetracycline. Tricane methanesulfonate (MS-222) is used to anesthetize fish. Oxytetracycline (Terramycin[®]) is used during periods of disease outbreak.

Chemicals and drugs that are not currently used at the Facility, but may possibly be used in the future include potassium permanganate and Chloramine-T as a possible replacements for copper and formalin. Antibiotics such as Amoxicillin trihydrate, Romet-30[®] (Sulfadimethoxine-ormetoprim), erythromycin, and Florfenicol may be used during periods of disease outbreak. Penicillin G, an antibiotic, may be used as an immersive bath treatment during periods of disease outbreak at the Facility. Carbon dioxide may be used to anesthetize fish. Vaccines, such as enteric redmouth bacterin and Vibrio vaccine may also be used.

A. Description of Wastewater, Hazardous Materials and Biosolids Treatment or Controls

Based on the Report of Waste Discharge dated 8 May 2008, the Facility has an annual production of 100,000 pounds (lbs) of rainbow trout, 6000 lbs of brown trout, and 4,000 lbs of brook trout. Annual Reports for the last two years report a total production of 128,000 lbs of fish produced and 210,000 lbs of food used in 2006, and 103,000 lbs of fish produced and 168,000 lbs of food used in 2007.

When fish are first brought out of the hatchery building and ponded in a raceway, they are fed by hand to assure that food is utilized and not wasted. Hand feeding is done with a bucket and scoop. The feed is broadcast over the pond surface to assure that the feed is applied evenly while the fish feeder observes how much of the feed is consumed.

Larger fish, ranging in size from 2 to 20 fish per pound, are fed two to five times per day by a mechanical feeder mounted on a pickup truck. Feed is mechanically weighed, or weighed by hand, into a hopper and then a blower fans the feed over the pond surface for the fish to consume as the fish feeder drives the vehicle along the raceways. Feed amounts and the frequencies are calculated for the feed person and the feed person uses a feed chart.

Fish are routinely taken off feed prior to handling them (i.e. cleaning of ponds, moving them to another pond or loading them into trucks for release), to minimize mortality.

Slotted aluminum screens are used to separate different fish "lots" (different age groups of fish) and to keep the fish contained within the raceway series. The screens are cleaned of any debris and mortalities several times daily. Ponds are cleaned on an as needed basis, as fish crowding and loading can disturb settled biosolids in the raceways. The pond cleaning frequency is set to minimize waste discharge.

Materials or debris from the pond screens, roadways or grounds are disposed of in trash cans or collected in the debris burn pile. Hatchery personnel ignite the burn pile on permissive burn days. The collected trash is hauled to a Siskiyou County transfer station at least once a week or as needed.

Any unused aquaculture drugs and chemicals are disposed of in accordance to label guidelines and Material Safety Data Sheet guidelines. The Facility generally does not have unused drugs or chemicals to dispose of since their use would be anticipated and the amount is calculated for a specific need.

Fish mortalities are collected daily from the ponds, frozen and picked up by North State Rendering Company on an as needed basis.

Water supply intake diversions and raceway pond effluent discharge pipes are inspected and cleaned daily to ensure prevention of overflow and possible water bypassing the facility. These procedures are included in the fish feeding and standby personnel duties. Hatchery employees are assigned standby duties on a rotating basis

during inclement weather months (October through April) and as needed throughout the remainder of the year to prevent any screens from plugging or water overflowing from water intakes.

The Facility has four chemical storage areas for 1) paints and gas, 2) therapeutics and chemicals relating to fish health, 3) oil and grease, and 4) cleaning supplies.

Paints and gas are contained in an approved metal flammable liquid storage area. Paints are contained in their original containers and are properly labeled. Fuels are contained in approved canisters specifically manufactured for gasoline. Any spillage would be contained within the confines of the metal storage unit.

Therapeutics and chemicals related to fish health are kept in storage area within a building commonly referred to as the meat room. Chemicals are stored in their original containers and have labeling consistent with proper handling practices. The storage area floor is concrete and any spills would be confined to that small area.

Oil and grease are stored within a closed area in the garage. Oil is stored in one quart containers and grease is contained in their one pound containers purchased from the manufacturers. The garage floor is concrete and any spillage would be confined within a small area. Other automotive chemicals may be stored in that area as well. Waste oil is not stored and is immediately returned to an approved center for recycling.

Domestic sewage from the hatchery buildings and private residences is discharged to septic tank/leachfield systems. Hatchery Building B and the shop have separate septic tanks with a common leachfield. The museum and an adjacent residence share a common septic tank/leachfield. The private residence adjacent to Pond X has a separate septic tank/leachfield. The remaining five residences and meat house have three septic tanks with service to a common leachfield.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 17, T40N, R4W, MDB&M as shown in Attachment B (Figure B-1), a part of this Order.
2. Wastewater from Building B, the earthen and concrete raceways, and the spawning houses enters one of two settling ponds prior to discharging to Cold Creek (EFF-001). The wastewater flows through private property with grazing, private impoundments, and other agriculture uses before entering Cold Creek approximately one-half mile downstream. Wastewater from Building E and a rearing pond (Pond X) enters a single settling pond (Pond 38) prior to Discharge to Wagon Creek (EFF-002). The Discharge flows across private agricultural property prior to discharging to a private impoundment called Brown's lake. Cold Creek, Wagon Creek and Brown's Lake are waters of the United States. Discharge from Building E may also be directed to the percolation pond (EFF-003).

C. Summary of Historical Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations/Discharge Specifications contained in the existing Order for discharges from Discharge Points 001 and 002 and representative monitoring data from the term of the previous Order are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From June 2004 – To June 2008)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	mgd	--	--	13.8	--	--	14.0
Total Suspended Solids (net)	mg/L	5	--	15	--	--	20
Settleable Solids	ml/L	0.1	--	0.2		--	0.1
Formaldehyde	mg/L	0.65	--	1.3	--	--	ND
pH	s.u.	--	--	8.5	--	--	8.2
pH	s.u.	--	--	6.5 (min)			6.7

D. Compliance Summary

1. The Discharger submitted an incomplete self-monitoring report for the March 2007 reporting period. Some required samples were not collected and analyzed due to staff turnover in March 2007. Total Suspended Solids exceedance occurred during a period of high influent water concentrations (420 mg/l). All other net TSS results were below the effluent limitation.

E. Planned Changes – Not Applicable

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in the Findings in section II of this Order. The applicable plans, policies, and regulations relevant to the discharge include the following:

A. Legal Authority

This Order is issued pursuant to regulations in the Clean Water Act (CWA) and the California Water Code (CWC) as specified in the Finding contained at section II.C of this Order.

B. California Environmental Quality Act (CEQA)

This Order meets the requirements of CEQA as specified in the Finding contained at section II.E of this Order.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** This Order implements the *Water Quality Control Plan, Fourth Edition (Revised February 2007, for the Sacramento and San Joaquin River Basins)* (Basin Plan) as specified in the Finding contained at section II.H of this Order.
2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at section II.I of this Order.
3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at section II.I of this Order.
4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at section II.L of this Order.
5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Resources Control Board (State Water Board) Resolution 68-16. Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies.

This Order does not allow for an increase in flow or mass of pollutants to the receiving water over the previous permit. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with water quality-based effluent limits (WQBELs) where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards.

This Order allows for the use of aquaculture drugs and chemicals including oxytetracycline, penicillin G, florfenicol, amoxicillin, trihydrate, erythromycin, Romet-30, MS-222, PVP, iodine, hydrogen peroxide, potassium permanganate, acetic acid, and chloramine-T. Staff has reviewed NPDES permits for aquaculture facilities in the states of Oregon, Idaho, and Washington, in addition to California and other states. None of these states have promulgated water quality standards for these types of chemicals. Based on information submitted as part of the application, in studies, and as directed in the previous permit, Regional Water Board staff evaluated each of these drugs and chemicals using the methodology outlined in the SIP. In addition, monitoring of these chemicals is required during their use to determine if they are present in the effluent. The requirements in this permit for the control and monitoring of disease control drugs comply with the regulations and are fully supportive of the Clean Water Act.

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.M of this Order. Compliance with the anti-backsliding requirements is discussed in the Fact Sheet (Attachment F, Section IV.D.3).
7. **Endangered Species Act.** This Order is consistent with the Endangered Species Act as specified in the Finding contained at section II.P of this Order.

D. Impaired Water Bodies on CWA 303(d) List

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On July 25, 2003 USEPA gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "*...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.).*" The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" Lake Siskiyou is not a 303(d) listed water.
2. **Total Maximum Daily Loads.** The US EPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. The receiving waters for this facility are not 303(d) listed and no TMDLs have been set for the receiving waters for this facility.

E. Regulation of Aquaculture Drugs and Chemicals

CAAP facilities produce fish and other aquatic animals in greater numbers than natural stream conditions would allow; therefore, system management is important to ensure that fish do not become overly stressed, making them more susceptible to disease outbreaks. The periodic use of various aquaculture drugs and chemicals is needed to ensure the health and productivity of cultured aquatic stocks and to maintain production efficiency.

CAAP facilities may legally obtain and use aquaculture drugs in one of several ways. Some aquaculture drugs and chemicals used at CAAP facilities in the Region are approved by the U.S. Food and Drug Administration (FDA) for certain aquaculture uses on certain aquatic species. Others have an exemption from this approval process when used under certain specified conditions.

Still others are not approved for use in aquaculture, but are considered to be of “low regulatory priority” by FDA (hereafter “LRP drug”). FDA is unlikely to take regulatory action related to the use of a LRP drug if an appropriate grade of the chemical or drug is used, good management practices are followed, and local environmental requirements are met (including NPDES permit requirements). Finally, some drugs and chemicals may be used for purposes, or in a manner not listed on their label (i.e., “extra-label” use) under the direction of licensed veterinarians for the treatment of specific fish diseases diagnosed by fish pathologists. It is assumed that veterinarian-prescribed aquaculture drugs are used only for short periods of duration during acute disease outbreaks. Each of these methods of obtaining and using aquaculture drugs is discussed in further detail below.

It is the responsibility of those using, prescribing, or recommending the use of these products to know which aquaculture drugs and chemicals may be used in CAAP facilities in the Region under all applicable federal, State, and local regulations and which aquaculture drugs and chemicals may be discharged to waters of the United States and waters of the State in accordance with this permit. A summary of regulatory authorities related to aquaculture drugs and chemicals is outlined below.

Summary of Regulatory Authorities

FDA is responsible for ensuring the safety, wholesomeness, and proper labeling of food products; ensuring the safety and effectiveness of both human and animal drugs; and ensuring compliance with existing laws governing these drugs. The Federal Food, Drug, and Cosmetic Act (FFDCA), the basic food and drug law of the United States, includes provisions for regulating the manufacture, distribution, and the use of, among other things, new animal drugs and animal feed. FDA’s enforcement activities include correction and prevention of violations, removing illegal products or goods from the market, and punishing offenders. Part of this enforcement includes testing domestic and imported aquacultural products for drug and pesticide residues.

FDA’s Center for Veterinary Medicine (CVM) regulates the manufacture, distribution, and use of animal drugs. CVM is responsible for ensuring that drugs used in food-producing animals are safe and effective and that food products derived from treated animals are free from potentially harmful residues. CVM approves the use of new animal drugs based on data provided by a sponsor (usually a drug company). To be approved by CVM, an animal drug must be effective for the claim on the label) and safe when used as directed for (1) treated animals; (2) persons administering the treatment; (3) the environment, including non-target organisms; and (4) consumers. CVM establishes tolerances and animal withdrawal periods as needed for all drugs approved for use in food-producing animals. CVM has the authority to grant investigational new animal drug (INAD) exemptions so that data can be generated to support the approval of a new animal drug.

There are several options for CAAP facilities to legally obtain and use aquaculture drugs. Aquaculture drugs and chemicals can be divided into four categories as outlined

below: approved drugs, investigational drugs, unapproved drugs of low regulatory priority, and extra-label use drugs.

- ***FDA approved new animal drugs***

Approved new animal drugs have been screened by the FDA to determine whether they cause significant adverse public health or environmental impacts when used in accordance with label instructions. Currently, there are eight new animal drugs approved by FDA for use in food-producing aquatic species. These eight FDA-approved new animal drugs are:

1. Chorionic gonadotropin (Chlorulun®), used for spawning;
2. Oxytetracycline (Terramycin®), an antibiotic;
3. Sulfadimethoxine-orometoprim (Romet-30®), an antibiotic;
4. Tricaine methanesulfonate (MS-222, Finquel® and Tricaine-S), an anesthetic;
5. Formalin (Formalin-F®, Paracide F® and PARASITE-S®), used as a fungus and parasite treatment;
6. Sulfamerazine, an antibiotic;
7. Florfenicol (Aquaflor ®), an antibiotic; and
8. Hydrogen peroxide, used to control fungal and bacterial infections.

The FDA approves each aquaculture drug in this category for use on specific fish species, for specific disease conditions, for specific dosages, and with specific withdrawal times. Product withdrawal times must be observed to ensure that any product used on aquatic animals at a CAAP facility does not exceed legal tolerance levels in the animal tissue. Observance of the proper withdrawal time helps ensure that products reaching consumers are safe and wholesome.

FDA-approved new animal drugs that are added to aquaculture feed must be specifically approved for use in aquaculture feed. Drugs approved by FDA for use in feed must be found safe and effective. Approved new animal drugs may be mixed in feed for uses and at levels that are specified in FDA medicated-feed regulations only. It is unlawful to add drugs to feed unless the drugs are approved for feed use. For example, producers may not top-dress feed with water-soluble, over-the-counter antibiotic product. Some medicated feeds, such as Romet-30®, may be manufactured only after the FDA has approved a medicated-feed application (FDA Form 1900) submitted by the feed manufacturer.

- ***FDA Investigational New Animal Drugs (INAD)***

Aquaculture drugs in this category can only be used under an investigational new animal drug or “INAD” exemption. INAD exemptions are granted by FDA CVM to permit the purchase, shipment and use of an unapproved new animal drug for investigational purposes. INAD exemptions are granted by FDA CVM with the expectation that meaningful data will be generated to support the approval of a new animal drug by FDA in the future. Numerous FDA requirements must be met for the establishment and maintenance of aquaculture INADs.

There are two types of INADs: standard and compassionate. Aquaculture INADs, most of which are compassionate, consist of two types: routine and emergency. A compassionate INAD exemption is used in cases in which the aquatic animal's health is of primary concern. In certain situations, producers can use unapproved drugs for clinical investigations (under a compassionate INAD exemption) subject to FDA approval. In these cases, CAAP facilities are used to conduct closely monitored clinical field trials. FDA reviews test protocols, authorizes specific conditions of use, and closely monitors any drug use under an INAD exemption. An application to renew an INAD exemption is required each year. Data recording and reporting are required under the INAD exemption in order to support the approval of a new animal drug or an extension of approval for new uses of the drug.

- ***FDA Unapproved new animal drugs of low regulatory priority (LRP drugs)***

LRP drugs do not require a new animal drug application (NADA) or INAD exemptions from FDA. Further regulatory action is unlikely to be taken by FDA on LRP drugs as long as an appropriate grade of the drug or chemical is used, good management practices are followed, and local environmental requirements are met (such as NPDES permit requirements contained in this Permit). LRP drugs commonly used at CAAP facilities in the Region include the following:

1. Acetic acid, used as a dip at a concentration of 1,000-2,000 mg/L for 1-10 minutes as a parasiticide for fish.
2. Carbon dioxide gas, used for anesthetic purposes in cold, cool and warm water fish.
3. Povidone iodine (PVP) compounds, used as a fish egg disinfectant at rates of 50 mg/L for 30 minutes during egg hardening and 100 mg/L solution for 10 minutes after water hardening.
4. Sodium bicarbonate (baking soda), used at 142-642 mg/L for 5 minutes as a means of introducing carbon dioxide into the water to anesthetize fish.
5. Sodium chloride (salt), used at 0.5-1% solution for an indefinite period as an osmoregulatory aid for the relief of stress and prevention of shock. Used as 3% solution for 10-30 minutes as a parasiticide.

FDA is unlikely to object at present to the use of these LRP drugs if the following conditions are met:

1. The aquaculture drugs are used for the prescribed indications, including species and life stages where specified.
2. The aquaculture drugs are used at the prescribed dosages (as listed above).
3. The aquaculture drugs are used according to good management practices.
4. The product is of an appropriate grade for use in food animals.
5. An adverse effect on the environment is unlikely.

FDA's enforcement position on the use of these substances should be considered neither an approval nor an affirmation of their safety and effectiveness. Based on information available in the future, FDA may take a different position on their use. In addition, FDA notes that classification of substances as new animal drugs of LRP does

not exempt CAAP facilities from complying with all other federal, state and local environmental requirements, including compliance with this Permit.

- ***Extra-label use of an approved new animal drug***

Extra-label drug use is the actual or intended use of an approved new animal drug in a manner that is not in accordance with the approved label directions. This includes, but is not limited to, use on species or for indications not listed on the label. Only a licensed veterinarian may prescribe extra-label drugs under FDA CVM's extra-label drug use policy. CVM's extra-label use drug policy (CVM Compliance Policy Guide 7125.06) states that licensed veterinarians may consider extra-label drug use in treating food-producing animals if the health of the animals is immediately threatened and if further suffering or death would result from failure to treat the affected animals. CVM's extra-label drug use policy does not allow the use of drugs to prevent diseases (prophylactic use), improve growth rates, or enhance reproduction or fertility. Spawning hormones cannot be used under the extra-label policy. In addition, the veterinarian assumes the responsibility for drug safety and efficacy and for potential residues in the aquatic animals.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 USC, 1311(b)(1)(C); 40 CFR, 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 CFR Section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that *"are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality."* Federal Regulations, 40 CFR, §122.44(d)(1)(vi), further provide that *"[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."*

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR 122.44(d) requires that permits include WQBELs

to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00, contains an implementation policy “*Policy for Application of Water Quality Objectives*” that specifies that the Regional Water Board “*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*” This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) EPA’s published water quality criteria, (2) a proposed state criterion (*i.e.*, water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e.*, the Regional Water Board’s “*Policy for Application of Water Quality Objectives*”)(40 CFR 122.44(d)(1) (vi) (A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at III-8.00.) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, “*...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*” in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective states: “*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*”

A. Discharge Prohibitions

As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41(m), define “bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage.

In considering the Regional Water Board’s prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation, provided that the bypass does not cause a violation of an effluent and/or receiving water limitation.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at 40 CFR 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Effluent Limitations Guidelines and Standards for the Concentrated Aquatic Animal Production Point Source Category in 40 CFR Part 451.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- a.** Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- b.** Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- c.** Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the “cost reasonableness” of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.
- d.** New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and section 125.3 of the Code of Federal Regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in section 125.3.

A cold-water concentrated aquatic animal production (CAAP) facility is defined in Title 40 of the Code of Federal Regulations (40 CFR 122.24) as a fish hatchery, fish

farm, or other facility that contains, grows, or holds cold-water fish species or other cold-water aquatic animals in ponds, raceways, or other similar structures. In addition, the facility must discharge at least 30 calendar days per year, produce at least 20,000 pounds (9,090 kilograms) harvest weight of aquatic animals per year, and feed at least 5,000 pounds (2,272 kilograms) of food during the calendar month of maximum feeding. A facility that does not meet the above criteria may also be designated a cold-water CAAP facility upon a determination that the facility is a significant contributor of pollution to waters of the United States [40 CFR 122.24(c)]. Cold-water, recirculating CAAP facilities are designed to minimize water requirements, which leads to small-volume, concentrated waste streams as well as makeup water overflow. Waste streams from recirculating systems are typically a small but continuous flowing effluent. Flows from CAAP facilities ultimately are discharged to waters of the United States and of the State. 40 CFR 122.24 specifies that CAAP facilities are point sources subject to the National Pollutant Discharge Elimination System (NPDES) program. The Discharger's facility meets the NPDES definition of a cold-water, recirculating CAAP facility.

The operation of CAAP facilities may introduce a variety of pollutants into receiving waters. USEPA identifies three classes of pollutants: (1) conventional pollutants (i.e., total suspended solids (TSS), oil and grease (O&G), biochemical oxygen demand (BOD), fecal coliform, and pH); (2) toxic pollutants (e.g., metals such as copper, lead, nickel, and zinc and other toxic pollutants; and (3) non-conventional pollutants (e.g., ammonia-N, Formalin, and phosphorus). Some of the most significant pollutants discharged from CAAP facilities are solids from uneaten feed and fish feces that settle to the bottom of the raceways. Both of these types of solids are primarily composed of organic matter including BOD, organic nitrogen, and organic phosphorus.

On August 23, 2004 USEPA published Effluent Limitation Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category (hereafter "ELG") [40 CFR 451]. These ELGs became effective on September 22, 2004. The ELG regulation establishes national technology-based effluent discharge requirements for flow-through and recirculation systems and for net pens based on BPT, BCT, BAT and NSPS. In its proposed rule, published on September 12, 2002, USEPA proposed to establish numeric limitations for a single constituent – total suspended solids (TSS) – while controlling the discharge of other constituents through narrative requirements. In the final rule, however, USEPA determined that, for a nationally applicable regulation, it would be more appropriate to promulgate qualitative TSS limitations in the form of solids control best management practices (BMP) requirements. Furthermore, the final ELG does not include numeric effluent limitations for non-conventional and toxic constituents, such as aquaculture drugs and chemicals, but also relies on narrative limitations to address these constituents. The final ELG applies to CAAP facilities that produce, hold or contain 100,000 pounds or more of aquatic animals per year (any 12 month period). The Discharger's facility is therefore subject to ELG requirements.

2. Applicable Technology-Based Effluent Limitations

- a. Total Suspended Solids (TSS).** Technology-based requirements in this Order are based on a combination of application of the ELG for BMP requirements and case-by-case numeric limitations developed using best professional judgment (BPJ) and carried over from the previous Order R5-2004-0116. The effluent limitations for TSS are 5.0 mg/L as an average monthly limitation and 15 mg/L as a maximum daily limitation. Section 402(o) of the CWA prohibits backsliding of effluent limitations that are based on BPJ to reflect a subsequently promulgated ELG which is less stringent. Removal of the numeric limitations for TSS would constitute backsliding under CWA Section 402(o). These limitations are established as a means of controlling the discharge of solids from algae, silt, fish feces and uneaten feed. The Regional Board finds the use of TSS effluent limitations is an appropriate measure of performance and a correct interpretation of these limitations, and does not constitute backsliding (40 CFR 122.44(l)(2)(i)(B)(2)). Results of monitoring indicate the Discharger is capable of meeting these limitations.
- b. Flow.** This Order contains a maximum daily effluent discharge flow limitation of 13.8 mgd.

3. Final Technology-Based Effluent Limitations

Table F-3. Summary of Technology-based Effluent Limitations, Discharge Point 001 and Discharge Point 002

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	--	13.8	--	--
Total Suspended Solids	mg/L	5	15	--	--
	lbs/day ¹	580	1,730	--	--

¹ Based on a design flow of 13.8 mgd.

The Discharger shall minimize the discharge of Total Suspended Solids to the BPT through implementing best management practices established in Special Provision VI.C.3 of this Order.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*" and with respect to disposal of wastewaters states that "*...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

The federal CWA section 101(a)(2), states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other

purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. Receiving Water and Beneficial Uses.

Receiving waters for the facility include the Cold and Wagon Creeks and the groundwaters of the Sacramento River Basin.

The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan does not specifically identify beneficial uses for Cold and Wagon Creeks but does identify present and potential uses for Lake Siskiyou, to which Cold and Wagon Creeks are tributary. Thus, beneficial uses applicable to Cold and Wagon Creeks are as follows:

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Cold Creek	<p><u>Existing:</u> Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD; spawning, reproduction, and/or early development, warm and cold (SPWN); and wildlife habitat (WILD).</p> <p><u>Existing groundwater:</u> Municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).</p>
002 003	Wagon Creek	<p><u>Existing:</u> Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD; spawning, reproduction, and/or early development, warm and cold (SPWN); and wildlife habitat (WILD).</p> <p><u>Existing groundwater:</u> Municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).</p>

- b. Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from June 2004 through June 2008, which includes effluent and ambient background data submitted in SMRs and the Report of Waste Discharge (ROWD). Additional chemical-specific chronic toxicity data from the Discharger for complete analyses.

c. Priority Pollutant Metals

Hardness-Dependent CTR Metals Criteria. The *California Toxics Rule* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP, the CTR and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. (SIP 1.2; 40 CFR 131.38(c)(4), Table 5, note 4.) The CTR does not define whether the term “ambient,” as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. In some cases, the hardness of effluent discharges changes the hardness of the ambient receiving water. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Regional Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10.).

The hardness values must also be protective under all flow conditions (*Id.*, pp. 10-11). As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces criteria that ensure these metals do not cause receiving water toxicity, while avoiding criteria that are unnecessarily stringent.

A 2006 study (*California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations*, R.W. Emerick, Y. Borroum, & J.E. Pedri, WEFTEC, Chicago Ill. – WEFTEC study) developed procedures for calculating the effluent concentration allowance (ECA) for CTR hardness-dependent metals. The WEFTEC study demonstrated that it is necessary to evaluate all discharge conditions (e.g. high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. Simply using the lowest recorded upstream receiving water hardness to calculate the ECA may result in over or under protective water quality-based effluent limitations.

The equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:

$$\text{CTR Criterion} = \text{WER} \times e^{m[\ln(H)]+b} \quad (\text{Equation 1})$$

Where:

H = Design Hardness

WER = water-effect ratio

m, b = metal- and criterion-specific constant

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted to use a value other than 1. The constants “m” and “b” are specific to both the metal under consideration, and the type of total recoverable criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

$$ECA = C \quad (\text{when } C \leq B) \quad (\text{Equation 2})$$

Where

C = the priority pollutant criterion/objective, adjusted for hardness (see Equation 1 above)

B = the ambient background concentration.

The WEFTEC study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as “Concave Down Metals”. “Concave Down” refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as “Concave Up Metals”.

ECA for Concave Down Metals – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the WEFTEC study demonstrates that based on the minimum observed ambient background hardness, no receiving water assimilative capacity for metals, and the minimum effluent hardness, the ECA calculated using Equation 1 with a hardness equivalent to the minimum effluent hardness is protective under all discharge conditions (i.e., high and low dilution conditions and under all mixtures of effluent and receiving water as the effluent mixes with the receiving water). This is applicable whether the effluent hardness is less than or greater than the ambient background receiving water hardness.

The minimum effluent hardness was 26 mg/L (as CaCO₃), based on 2 samples from June 2004 to June 2008. While no upstream receiving water hardness data is available, the upstream hardness can be assumed to be equal to the effluent and discharge hardness as the facility diverts upstream water and which passes through the facility without the addition of chemicals that make the water harder and then returns the water to the receiving water. There is no statistical difference in the hardness of the downstream receiving water and the effluent. Assuming the upstream hardness to be equal to the downstream hardness, the

hardness varied from 30 to 31 mg/L (as CaCO_3) (two samples from June 2004 to June 2008). Using a hardness of 30 mg/L (as CaCO_3) to calculate the ECA for all Concave Down Metals will result in water quality-based effluent limitations that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in the example using copper shown in Table F-4, below. This example assumes the following conservative conditions:

- Receiving water always at the lowest observed upstream receiving water hardness (i.e. 30 mg/L as CaCO_3)
- Upstream receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity). Based on available data, the receiving water never exceeded the CTR criteria for any metal with hardness-dependant criteria.

As demonstrated in Table F-5, using a hardness of 26 mg/L (as CaCO_3) to calculate the ECA ensures the discharge is protective under all discharge and mixing conditions. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. Therefore, a hardness of 26 mg/L (as CaCO_3) has been used in this Order to calculate the ECA for all Concave Down Metals.

Table F-5. Copper ECA Evaluation

Minimum Observed Effluent Hardness		26 mg/L (as CaCO ₃)		
Minimum Observed Background Receiving Water Hardness		30 mg/L (as CaCO ₃)		
Maximum Assumed Receiving Water Copper Concentration		3.3 µg/L		
Copper ECA ¹		3.0 µg/L		
Effluent Fraction	Mixed Downstream Ambient Concentration			
	Hardness ² (mg/L) (as CaCO ₃)	CTR Criteria ³ (µg/L)	Copper ⁴ (µg/L)	
	1%	30	3.3	3.3
	5%	29.8	3.3	3.3
	15%	29.4	3.3	3.3
	25%	29	3.2	3.2
	50%	28	3.1	3.1
	75%	27	3.0	3.0
	100%	26	3.0	3.0

¹ ECA calculated using Equation 1 for chronic criterion at a hardness of 26 mg/L (as CaCO₃).

² Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

³ Mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

⁴ Mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction.

ECA for Concave Up Metals – No discussion of concave up metals [cadmium (acute), lead, and silver (acute)] is included in this Fact Sheet as this facility does not have reasonable potential for concave up metals.

Conversion Factors. The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

- d. Assimilative Capacity/Mixing Zone.** As the levels of copper in the receiving waters are unknown and the dilution ratios are unknown, there is no known assimilative capacity for copper in the receiving waters and no mixing zone is allowed.

3. Determining the Need for WQBELs

- a. The Regional Water Board conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.¹ The SIP states in the introduction “*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency.*” Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs.
- b. **Constituents with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.
- c. **Constituents with Reasonable Potential.** The Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for pH, Settleable Matter, Copper (Total Recoverable), Formaldehyde and Chloride. WQBELs for these constituents are included in this Order. A detailed discussion of the RPA for each constituent is provided below.
 - i. **pH**
 - (a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the “...*pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*”
 - (b) **RPA Results.** The discharge of hatchery wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plan’s numeric objectives for pH.
 - (c) **WQBELs.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
 - (d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the pH is within the applicable WQBEL range. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

¹ See, Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City)

ii. Salinity

(a) WQO. There are no USEPA water quality criteria for the protection of aquatic organisms for electrical conductivity, total dissolved solids, sulfate, and chloride. The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for electrical conductivity, total dissolved solids, sulfate, and chloride.

Table F-6. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal ¹	Secondary MCL ³	Effluent	
			Average	Maximum
EC (µmhos/cm)	Varies ²	900, 1600, 2200	185	647
TDS (mg/L)	Varies	500, 1000, 1500	n/a	n/a
Sulfate (mg/L)	Varies	250, 500, 600	n/a	n/a
Chloride (mg/L)	Varies	250, 500, 600	260	373

¹ Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)

² The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 µmhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

³ The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

(1) Chloride. The secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L as a long-term average based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

(2) Electrical Conductivity. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e. a

restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

- (3) Sulfate.** The secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
- (4) Total Dissolved Solids.** The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

(b) RPA Results

- (1) Chloride.** Chloride concentrations are not analyzed at the Facility. Salt (sodium chloride) is used as needed at the Facility as a fish-cleansing agent to control fish disease and to reduce stress amongst the confined fish population. The Discharger reports salt usage is generally restricted to the 'C' raceway and sometimes the 'D' raceway and is used when fish arrive from other hatcheries. Fish hatched and raised at the Facility are less disease prone than fish arriving from other hatcheries and salt is generally not used on the Facility-hatched fish. A typical application of salt consists of adding up to 500 pounds of salt in a single raceway. Water from the treated raceway is merged with the water from three untreated raceways having equal flow rates (approximately 4 cfs). Assuming the salt dissolves completely over a three-hour period, the maximum increase in salt concentration over background concentration discharged after merging with the three

untreated raceways is 46 mg/L. This equates to an increase of chloride concentration of 28 mg/l. As the background water quality is expected to be low in chloride content, no chloride monitoring is required.

(2) Electrical Conductivity. A review of the Discharger's monitoring reports shows an average effluent EC of 88 µmhos/cm, with a range from 82 µmhos/cm to 109 µmhos/cm in EFF-001. EFF-002 has an average effluent EC of 86 µmhos/cm with a range from 42 µmhos/cm to 108 µmhos/cm. These levels do not exceed the agricultural water goal. The background receiving water EC averaged 94 µmhos/cm.

(3) Sulfate. Sulfate concentrations are not analyzed at the Facility. The major source of sulfate at the Facility would be from a copper sulfate treatment. Only one copper sulfate treatment occurred at the Facility since June 2004 and none are anticipated in the future due to the low copper effluent limit. The one copper sulfate treatment in March 2003 consisted of adding one kilogram of copper sulfate to the raceways. At the flow rates given in the chloride RPA result, sulfate water quality criteria/objectives are not expected to be exceeded due to Facility operations.

(4) Total Dissolved Solids. TDS concentrations are not analyzed at the Facility. The major source of TDS at the Facility would be the salt treatments described in the chloride RPA results above. TDS added by the salt treatment equates to 46 mg/l.

(c) WQBELs. Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. However, since the Discharger discharges to Wagon and Cold Creeks, which are tributaries of Lake Siskiyou and eventually the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. This Order continues the previous Order's average monthly chloride limit of 106 mg/L.

In order to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to develop and implement a salinity evaluation and minimization plan. Also water supply monitoring is required to evaluate the relative contribution of salinity from the source water to the effluent.

(d) Facility Performance and Attainability. Analysis of the effluent data shows that the increase in chloride concentration of 28 mg/L is low and that when added to the background chloride concentration will be below the WQBEL. The Regional Water Board concludes, therefore, that immediate compliance with this effluent limitation is feasible.

iii. Total Suspended Solids and Settleable Solids

- (a) **WQO.** For inland surface waters, the Basin Plan states that “[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.”
- (b) **RPA Results.** The discharge of hatchery wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plan’s narrative objective for total suspended solids and settleable solids.
- (c) **WQBELs.** The USEPA’s final ELG for the aquaculture industry does not include numeric effluent limitations on any conventional, non-conventional, or toxic constituents. Rather, USEPA promulgated qualitative limitations in the form of BMP requirements. The Regional Board is establishing effluent limitations for discharges of total suspended solids (TSS) and settleable solids for this Facility. Technology-based requirements in this Order are based on a combination of application of the ELG for BMP requirements and case-by-case numeric limitations developed using best professional judgment (BPJ) and carried over from the previous Order No. R5-2004-0116. These effluent limitations are 5.0 mg/L net TSS as an average monthly limitation and 15 mg/L net TSS as a maximum daily limitation, and 0.1 ml/L settleable solids as an average monthly limitation and 0.2 ml/L settleable solids as a maximum daily limitation. Removal of these numeric limitations for TSS and settleable solids would constitute backsliding under CWA Section 402(o). The Regional Board has determined that these numeric limitations for TSS and settleable solids continue to be applicable to the Facility and that backsliding is not appropriate.

Because of the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order.

- (d) **Facility Performance and Attainability.** Analysis of the effluent data shows one exceedance of the net TSS limitation. No suspended solids exceedances occurred. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

- d. **Aquaculture Drugs and Chemicals.** Numeric water quality criteria or Basin Plan numeric objectives currently are not available for most of the aquaculture drugs and chemicals used by the Discharger or proposed for use at this facility. Therefore, the Regional Board used the narrative water quality objective for toxicity from the Basin Plan and applied the Policy for “Application of Water Quality Objectives” as a basis for determining “reasonable potential” for discharges of these drugs and chemicals. This objective states, in part: “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic

life.”

The Basin Plan states that compliance with this objective will be determined by several factors, including biotoxicity tests of appropriate duration, or other analytical methods as specified by the Regional Board. (Biotoxicity testing involves measuring the toxic effects of an effluent on specified organisms according to nationally approved protocols). USEPA’s TSD specifies two toxicity measurement techniques that can be employed in effluent characterization; the first is Whole Effluent Toxicity (WET) testing, and the second is chemical-specific toxicity analyses. WET testing is used most appropriately when the toxic constituents in an effluent are not completely known; whereas chemical-specific analysis is more appropriately used when an effluent contains only one, or very few, well-known constituents. Due to the nature of operations and chemical treatments at most CAAP facilities in the Region, CAAP facility effluents generally contain only one or two known chemicals at any given a time. Therefore, the Regional Board is using a chemical-specific approach to determine “reasonable potential” for discharges of aquaculture drugs and chemicals from CAAP facilities.

The California Department of Fish and Game Pesticide Investigation Unit (DFG Pesticide Unit) has completed biotoxicity studies to determine the aquatic toxicity of certain aquaculture drugs and chemicals commonly used at their CAAP facilities in the Region; specifically, formalin, hydrogen peroxide, potassium permanganate, MS-222, Chloramine-T, and PVP iodine. The Discharger is required by this Order to conduct toxicity testing on additional aquaculture drugs and chemicals they may propose to use but have not been studied.

- i. **Oxytetracyclin and Penicillin G.** Oxytetracycline, also known by the brand name Terramycin[®], is an antibiotic approved through FDA’s NADA program for use in controlling ulcer disease, furunculosis, bacterial hemorrhagic septicemia, and pseudomonas disease in salmonids. The Discharger uses the antibiotic during disease outbreaks at the hatchery. Oxytetracycline is most commonly used at CAAP facilities as a feed additive. However, oxytetracycline may also be used as an extra-label use under a veterinarian’s prescription in an immersion bath of approximately six to eight hours in duration. Because oxytetracycline may be applied in an immersion bath for up to eight hours at a time, the Regional Board considered the results of acute and chronic aquatic life toxicity testing conducted by the DFG Pesticide Unit when determining whether water quality-based effluent limits for oxytetracycline used in an immersion bath treatment were necessary in this Permit. Results of acute toxicity tests using *C. dubia* showed a 96-hour NOAEL of 40.4 mg/L. Results of chronic toxicity tests using *C. dubia* showed a 7-day NOEC for reproduction of 48 mg/L. The information available to the Regional Board regarding discharges of oxytetracycline indicates that it is discharged at levels well below the lowest NOEC and NOAEL. Therefore, at this time, the Regional Board determined that oxytetracycline, when used in

feed or in an immersion bath treatment, is not discharged at levels that cause, have the reasonable potential to cause, or contribute to an excursion of a narrative water quality objective for toxicity from the Basin Plans.

Accordingly, this Permit does not include an effluent limitation for oxytetracycline. However, monthly use of oxytetracycline must be reported as specified in the attached Monitoring and Reporting Program. The Regional Board will review this information, and other information as it becomes available, and this permit may be reopened to establish effluent limits based on additional use and toxicity information. Approximately five pounds of oxytetracycline have been used at the facility in each of the last five years.

Penicillin G is used for the control of bacterial infections and is administered as a six hour static bath. The Discharger reports that Penicillin G may be used as an immersion bath in the hatchery troughs and would be discharged via Discharge 001. The Discharger reports that treating 20 out of the 120 troughs using 500 grams Penicillin G with a half-hour elimination would result in 0.56 mg/L in Discharge 001. Penicillin G is not approved under FDA's NADA program and its extra-label use in aquaculture requires a veterinarian's prescription. Due to the length of treatment time, the Regional Board considered the results of acute and chronic aquatic life toxicity testing conducted by the DFG Pesticide Unit when determining whether water quality-based effluent limits for Penicillin G were necessary in this Permit. Results of acute toxicity tests using *C. dubia* showed a 96-hour NOAEL of 890 mg/L. Results of 7-day chronic toxicity testing using *Pimephales promelas* showed 7 day NOEC for survival of 350 mg/L. The information available to the Regional Board regarding discharges of Penicillin G indicates that it is discharged at levels well below the lowest NOEC and NOAEL. Therefore, at this time, the Regional Board determined that Penicillin G, when used in an immersion bath treatment, is not discharged from CAAP facilities in the Region at levels that cause, have the reasonable potential to cause, or contribute to an excursion of a narrative water quality objective for toxicity from the Basin Plan. Accordingly, this Permit does not include effluent limitations for Penicillin G. However, monthly use of Penicillin G must be reported as specified in the attached Monitoring and Reporting Program. The Regional Board will review this information, and other information as it becomes available, and this permit may be reopened to establish effluent limits based on additional use and toxicity information. Penicillin was not used at the Facility during the previous five years but may be used in the future.

- ii. ***Antibiotics in Feed Formulations and Injected.*** Amoxycillin, erythromycin, florfenicol, and Romet-30® are not currently used but may potentially be used by the Discharger. Amoxycillin is injected into fish to control acute disease outbreaks through a veterinarian's prescription for extra-label use. Erythromycin (injected or used in feed formulations) and florfenicol (used in

feed formulations) are antibiotics used to control acute disease outbreaks. Erythromycin must be used under an INAD exemption or a veterinarian feed directive. Florfenicol is a NADA approved drug. Romet 30®, also known by the trade name Sulfadimethoxine-oremtroprim, is an antibiotic used in feed formulations and is FDA-approved for use in aquaculture for control of furunculosis in salmonids. In the NPDES General Permit for Aquaculture Facilities in Idaho (Idaho General Permit), USEPA Region 10 distinguishes between antibiotics applied in feed formulations and antibiotics applied in immersion baths. The Idaho General Permit concludes that drugs or chemicals administered via feed, and ingested by fish, pose little threat to aquatic life or beneficial uses because a majority of the drug is utilized by the fish, though some literature suggests otherwise. As stated in the Idaho General Permit, "USEPA believes that disease control drugs and other chemicals provided for ingestion by fish do not pose a risk of harm or degradation to aquatic life or other beneficial uses." The Regional Board determined that amoxycillin (when injected into fish), erythromycin (when injected into fish or used as a feed additive), florfenicol and Romet-30® (when used as feed additives) are used in a manner that reduces the likelihood of direct discharge of antibiotics to waters of the United States or waters of the State, particularly when Dischargers implement BMPs as required by this Permit. Therefore, the Regional Board determined that amoxycillin, florfenicol and Romet 30® are not discharged from CAAP facilities in the Region at levels that cause, have the reasonable potential to cause, or contribute to an excursion of a narrative water quality objective for toxicity from the Basin Plan. Accordingly, this Permit does not include water quality-based effluent limitations for these substances; however, this Permit does require monthly monitoring and reporting of these substances as specified in the attached Monitoring and Reporting Program. The Regional Board will review this information and this permit may be reopened to establish effluent limits based on additional use and toxicity information.

- iii. ***Vibrio Vaccine and Enteric Redmouth Bacterin.*** To treat enteric redmouth disease, the Discharger may need to administer enteric redmouth bacterin. Enteric redmouth (or yersiniosis) bacterins are formulated from inactivated *Yersinia ruckeri* bacteria and may be used as an immersion or vaccine to help protect salmonid species from enteric redmouth disease caused by *Yersinia ruckeri*. These bacterins stimulate the fish's immune system to produce protective antibodies.

Vibrio vaccine may be used as an immersion or an injectable vaccine and helps protect salmonid species from vibriosis disease caused by *Vibrio anguillarum* serotype I and *Vibrio ordalii*. Vibrio vaccine stimulates the fish's immune system to produce protective antibodies, helping the animal defend itself against vibriosis.

Vibrio vaccine and enteric redmouth bacterin are licensed for use by the U.S.

Department of Agriculture's (USDA's) Center for Veterinary Biologics. Veterinarians should be consulted before beginning an immunization program. According to USDA, most biologics leave no chemical residues in animals and most disease organisms do not develop resistance to the immune response by a veterinary biologic. Based upon available information regarding the use of these substances at CAAP facilities, the Regional Board does not believe that vibrio vaccine or enteric redmouth bacterins, when used according to label and veterinarian instructions, are discharged at levels that cause, have the reasonable potential to cause, or contribute to an excursion of Basin Plan narrative water quality objectives for toxicity. Accordingly, this Order does not include water quality-based effluent limitations for these substances; however, use of these substances must be reported as specified in the attached Monitoring and Reporting Program. In the future, as additional information becomes available regarding the use or toxicity of these biologics, the Regional Board will re-evaluate whether the discharge of any of these substances to receiving waters may cause, have the reasonable potential to cause, or contribute to an excursion of the Basin Plan objectives for toxicity and, if necessary, re-open this Order to include numeric effluent limitations. The Discharger has not used Vibrio Vaccine or Enteric Redmouth Bacterin in the past five years but may need to during the life of this permit.

- iv. **MS-222® and AQUI-S®.** The Discharger uses the anesthetic Tricaine methanesulfonate, commonly known as MS-222 (with trade names of Fiquel® or Tricaine-S®). MS-222 has been approved by FDA for use as an anesthetic for Salmonidae. The Discharger considered using AQUI-S® under an INAD exemption, however, the U.S. Food and Drug Administration's Center for Veterinary Medicine rescinded authorization for the INAD use of AQUI-S® and the Discharger withdrew their proposed use of AQUI-S®. The use of AQUI-S® is not permitted under this permit.

Results of the Discharger's *C. dubia* test where the test animals were exposed to MS-222 for two hours followed by three exchanges of control water to remove residual compound and then observed for 96 hours determined the NOEC and LOEC to be 70 and 200 mg/L respectively. MS-222 is used as a 50 or 150 gallon static treatment bath having 350 mg/L MS-222. This concentration is diluted well below 70 mg/L when discharged through EFF-002. Based on available information regarding MS-222 when used according to the reported treatment, MS-222 is not discharged at levels that cause, have the reasonable potential to cause, or will contribute to an excursion of Basin Plan narrative water quality objectives for toxicity. Accordingly, this Order does not include water quality-based effluent limitations for MS-222. However, use and monitoring of MS-222 must be reported as specified in the attached Monitoring and Reporting Program. Approximately 4 kilograms of MS-222 were used in each of the past five years.

- v. **PVP Iodine.** PVP Iodine (Argentyne), a solution composed of 10% PVP Iodine Complex and 90% inert ingredients. PVP Iodine typically is applied in short-term treatments of 1-hour or less. Because PVP Iodine typically is applied in short-term treatments of 1-hour or less, results of acute aquatic life toxicity testing conducted by the DFG Pesticide Unit were considered when determining whether water quality-based effluent limitations for PVP Iodine were necessary in this Order. Results of a single acute toxicity test with *C. dubia* showed a 96-hour NOAEL of 0.86 mg/L. PVP Iodine used to disinfect eggs spawned at the hatchery enters Discharge 001. The Discharger reports when used over a six hour period with an additional four hours elimination from the settling ponds, the discharge would contain 0.04 mg/L of PVP Iodine. Results of *C. dubia* test where the test animals were exposed to the toxicant for two hours followed by three exchanges of control water to remove residual compound and then observed for 96 hours determined the NOEC and LOEC to be 12.5 and 25 mg/L respectively. Based on available information regarding PVP Iodine when used according to the reported treatment, PVP Iodine is not discharged at levels that cause, have the reasonable potential to cause, or will contribute to an excursion of Basin Plan narrative water quality objectives for toxicity. Accordingly, this Order does not include water quality-based effluent limitations for PVP Iodine. However, use and monitoring of PVP Iodine must be reported as specified in the attached Monitoring and Reporting Program. The Regional Board will review this information, and other information as it becomes available and this Order may be reopened to establish effluent limitations based on additional use and toxicity information. Approximately 30 gallons of PVP Iodine were used in each of the past five years. The Discharger will likely continue to use PVP Iodine at the facility.
- vi. **Formaldehyde (Formalin).** The Discharger historically used Formalin (a solution typically 37 percent by weight formaldehyde) as a fungicide treatment on the fish. The discharger ended their use of Formalin in the hatching operations with the spring 2008 hatching season and switched to a jar hatching system. In the event that Formalin is needed as a treatment for controlling external parasites in a raceway where it would be discharged to surface waters, the use would be a six-hour drip at 25 mg/L Formalin (9.2 mg/L formaldehyde) per raceway. Maximum usage would be 12 gal with a twelve-hour discharge of 0.89 mg/L formaldehyde from Discharge 001 (a twelve hour discharge includes the time of the treatment and the six hour elimination time from the settling basins). Formalin (also known by the trade names Formalin-F®, Paracide-F®, PARASITE-S®) is FDA-approved for use in controlling external protozoa and monogenetic trematodes on fish, and for controlling fungi of the family Saprolegniaceae in food-producing aquatic species.

The State of California Department of Health Services (DHS) does not have a Maximum Containment Level (MCL) for formaldehyde, however the DHS historic Drinking Water Action Level is listed as 0.1 mg/L based on calculation

by standard risk assessment methods, with a Modifying Factor = 10. The USEPA Integrated Risk Information System (IRIS) lists a reference dose of 1.4 mg/L as a drinking water level. There are no recommended criteria for formaldehyde for protection of aquatic life.

The Basin Plan contains a narrative water quality objective for toxicity that states in part that “[a]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life” (narrative toxicity objective). Aquatic habitat is a beneficial use of the Sacramento River.

The DFG Pesticide Unit conducted biotoxicity studies to determine the aquatic toxicity of Formalin using *Pimephales promelas* and *C. dubia* in accordance with the analytical methods specified in EPA600/4-91-002, Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. These “short-term chronic tests” measure effects such as reduced growth of the organism, reduced reproduction rates, or lethality. Results were reported as a No Observed Effect Concentration (NOEC) and a Lowest Observed Effect Concentration (LOEC). The DFG Pesticide Unit also conducted acute toxicity tests using *C. dubia* in accordance with methods specified in EPA600/4-90/027, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Acute toxicity test results typically are reported as the No Observed Adverse Effect Level (NOAEL), Lowest Observed Adverse Effect Level (LOAEL), and LC50. A summary of the data submitted follows:

Species	7-day LC50 (mg/L)	LOEC (mg/L)	NOEC (mg/L)	LOAEL (mg/L)	NOAEL (mg/L)
<i>Ceriodaphnia dubia</i>	2.43	5.8 ¹ 1.3 ²	1.3 ¹ <1.3 ²	5.8	1.3
<i>Pimephales promelas</i>	23.3	9.09	2.28	--	--
<i>Selanastrum capricornutum</i>	<5.2	--	--	--	--

¹Survival

²Reproduction

Notes: DFG lab report no. P-2251.1 dated 6/30/2001. Results as formaldehyde. Divide by 0.37 to obtain equivalent Formalin concentration.

Since Formalin treatments are usually utilized as a batch or flush treatment which result in discharges from three to eight hours, short-term tests were conducted with *Ceriodaphnia dubia*, exposing the organisms for 2-hour and 8-hour periods, removing them from the chemical, and continuing the observation period for 7 days in clean water. The results were as follows:

Species	7-day LC50 (mg/L)	LOAEL (mg/L)	NOAEL (mg/L)
<i>Ceriodaphnia dubia</i> – 2-hour exposure	73.65	46.3	20.7
<i>Ceriodaphnia dubia</i> – 8-hour exposure	13.99	15.3	6.7

Notes: DFG lab report no. P-2294.1 dated 1/30/2002. Results as formaldehyde. Divide by 0.37 to obtain equivalent Formalin concentration.

Results of both acute and chronic aquatic life toxicity testing conducted by the DFG Pesticide Unit were considered, effluent limitations from the previous Order, along with the Basin Plan narrative toxicity objective when determining whether water quality-based effluent limitations for formalin as formaldehyde were necessary. Results of 7-day chronic toxicity tests indicated *Ceriodaphnia dubia* was the most sensitive species, with a 7-day NOEC value of 1.3 mg/l formaldehyde for survival and < 1.3 mg/l for reproduction (the Regional Board used an NOEC of 1.3 mg/L). Acute toxicity tests conducted using *Ceriodaphnia dubia* showed a 96-hour NOAEL of 1.3 mg/l formaldehyde. The additional acute toxicity tests with *Ceriodaphnia dubia* conduct using only an 8-hour exposure, resulted in a 96-hour NOAEL concentration of 6.7 mg/L formaldehyde. There is no information regarding future discharge concentrations of formaldehyde in the raceways, therefore, this Order includes water quality-based effluent limitations for formaldehyde to ensure protection of the receiving waters.

Based on historic application rates for formalin at the Facility, the Regional Board determined that if formalin is used at this Facility in the future, formaldehyde may be discharged at levels that cause, have the reasonable potential to cause, or contribute to an excursion of a narrative water quality objective for toxicity from the Basin Plan. Accordingly, this Order includes water quality-based effluent limitations for formaldehyde. Exposure to formaldehyde in the receiving water as a result of discharges from the Facility may be long-term because of retention time in the settling basin and potential application procedures (e.g., successive raceway treatments, drip treatments for eggs). Therefore, an average monthly formaldehyde effluent limitation of 0.65 mg/L and a maximum daily formaldehyde effluent limitation of 1.3 mg/L are calculated based on the 96-hour NOAEL value and using the procedure in USEPA's TSD for calculating water quality-based effluent limitations. These limitations are carried over from the previous Order No. R5-2004-0116. Removal of these numeric limitations would constitute backsliding under CWA Section 402(o). The Regional Board has determined that these numeric limitations continue to be applicable to the Facility and that backsliding is not appropriate. These effluent limitations will ensure protection of aquatic life against effects from exposure to formaldehyde in the Discharge.

Use and monitoring of formaldehyde must be reported as specified in the attached Monitoring and Reporting. The Regional Board will review this information, and other information as it becomes available and this Order may

be reopened if necessary to establish more stringent effluent limitations based on additional use and toxicity information.

The Regional Board used USEPA's TSD guidance to calculate the MDEL and AMEL effluent limitations for formaldehyde as follows:

Assuming:

- No in-stream dilution allowance.
- Coefficient of Variation (CV) = 0.6 for the lognormal distribution of pollutant concentrations in the effluent.

Effluent Concentration Allowance based on NOAEL (acute toxicity) with no dilution allowance

$$ECA_a = 1.3 \text{ mg/L formaldehyde}$$

Effluent Concentration Allowance based on NOEC (Chronic toxicity) with no dilution allowance

$$ECA_c = 1.3 \text{ mg/L formaldehyde}$$

Long Term Average concentration based on acute ECA

$$LTA_a = 1.3 \text{ mg/L} \times 0.321 = 0.4173 \text{ mg/L formaldehyde}$$

(where 0.321 = acute ECA multiplier at 99% occurrence probability and 99% confidence)

Long Term Average concentration based on chronic ECA

$$LTA_c = 1.3 \text{ mg/L} \times 0.527 = 0.6851 \text{ mg/L formaldehyde}$$

(where 0.527 = chronic ECA multiplier at 99% occurrence probability and 99% confidence)

Most Limiting LTA concentration

$$LTA = 0.4173 \text{ mg/L formaldehyde}$$

Average Monthly Effluent Limit

$$AMEL = LTA \times 1.55$$

(where 1.55 = AMEL multiplier at 95% occurrence probability, 99% confidence, and $n = 4$)

$$AMEL = 0.4173 \text{ mg/L} \times 1.55 = \mathbf{0.65 \text{ mg/L formaldehyde}}$$

Maximum Daily Effluent Limit

$$\text{MDEL} = \text{LTA} \times 3.11$$

(where 3.11 = MDEL multiplier at 99% occurrence probability and 99% confidence)

$$\text{MDEL} = 0.4173 \text{ mg/L} \times 3.11 = \mathbf{1.3 \text{ mg/L formaldehyde}}$$

vii. Hydrogen Peroxide. Hydrogen peroxide (35 % H2O2) has been used for the control of external parasites at the hatchery. The Discharger indicated that when hydrogen peroxide is used, the treatment is a one-hour drip using 16 gallons. The calculated seven-hour discharge from Discharge 001 is 2.3 mg/L peroxide (1 hour drip time + a six hour discharge elimination from the settling basin). FDA approved hydrogen peroxide to control fungi on fish at all life stages, including eggs. Hydrogen peroxide may also be used to control bacterial gill disease in freshwater-reared salmonids, and, through an INAD, external parasites. Hydrogen peroxide is a strong oxidizer that rapidly breaks down into water and oxygen; however, it exhibits toxicity to aquatic life during the oxidation process. The Regional Board considered the results of acute aquatic life toxicity testing conducted by the DFG Pesticide Unit when determining whether water quality-based effluent limits for hydrogen peroxide were necessary in this Permit. Results of an acute toxicity test using *C. dubia* showed a 96 hour NOAEL of 1.3 mg/L based on continual constant exposure to hydrogen peroxide. When exposed to hydrogen peroxide for two hours followed by a triple lab water flush and normal test completion, *C. dubia* showed a 96-hour NOEC of 2 mg/L. Based chemical nature of hydrogen peroxide (i.e. high reactivity resulting in rapid degradation) and on available information regarding hydrogen peroxide when used according to the reported treatment, hydrogen peroxide is not discharged at levels that cause, have the reasonable potential to cause, or will contribute to an excursion of Basin Plan narrative water quality objectives for toxicity. Accordingly, this Order does not include water quality-based effluent limitations for hydrogen peroxide. However, use and monitoring of hydrogen peroxide must be reported as specified in the attached Monitoring and Reporting Program.

viii. Potassium Permanganate. Potassium permanganate (also known by the trade name of Cairox™) may be used to control gill disease as a 1-hour flush treatment in a single raceway. Potassium permanganate has a low estimated lifetime in the environment, being readily converted by oxidizable materials to insoluble manganese dioxide (MnO₂). In non-reducing and non-acidic environments, MnO₂ is insoluble and has a very low bioaccumulative potential. Potassium permanganate is a special category drug the FDA calls “regulatory action deferred”. Potassium permanganate is typically applied in a single, short-term treatment, or as a series of closely-spaced, short-term treatments. Results of a single acute toxicity test conducted by the DFG Pesticide Unit using *C. dubia* showed a 96-hour NOAEL of 0.038 mg/L for

potassium permanganate under continuous exposure. The DFG's 2-hour exposure test showed a 0.1975 mg/L NOEC. Since potassium permanganate is rapidly converted to insoluble manganese dioxide under hatchery conditions, this Order does not include water quality-based effluent limitations for potassium permanganate. However, use and monitoring of potassium permanganate must be reported as specified in the attached Monitoring and Reporting Program. Potassium permanganate has not been used at the hatchery but may be used in the future.

- ix. **Sodium Chloride.** Sodium chloride (salt) is used to control fish diseases at the hatchery. The Salinity discussion in this Fact Sheet includes information on salt usage. FDA considers sodium chloride an unapproved new animal drug of low regulatory priority (LRP drug) for use in aquaculture. Consequently, FDA is unlikely to take regulatory action if an appropriate grade is used, good management practices are followed, and local environmental requirements are met. There are no numeric water quality objectives for conductivity, TDS, or chloride in the NTR, CTR, or Basin Plan for the receiving waters. The Basin Plan does contain a narrative objective for chemical constituents that states, in part, "Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses." Agricultural irrigation is a beneficial use of the receiving water. *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1* (R.S. Ayers and D.W. Westcot, Rome, 1985), recommends that the conductivity level in waters used for agricultural irrigation not exceed 700 mmhos/cm (Agricultural Water Quality Goal) because it will reduce crop yield for sensitive plants. The Agricultural Water Quality Goal for TDS is 450 mg/L. USEPA's recommended ambient water quality criteria for chloride for the protection of freshwater aquatic life are 230 mg/l as a one-hour average, and 860 mg/l as a four-day average. The Agricultural Water Quality Goal for chloride is 106 mg/L. The discharge of sodium chloride from the Facility at the application rates described by the Discharger will not cause, have the reasonable potential to cause, or contribute to an in-stream excursion of applicable water quality criteria or objectives. Monitoring of conductivity and chloride is required and monthly use of sodium chloride must be reported as specified in the Monitoring and Reporting Program.
- x. **Chloramine-T.** Chloramine-T is not currently used may be used by the Discharger in the future as a possible replacement of copper sulfate and formalin. Chloramine-T is available for use in accordance with an INAD exemption by FDA. The Discharger reports that the therapeutic treatment consists of a 10 20 mg/L dose for a 1-hour exposure once per day for a 1 to 3 day period. Chloramine-T breaks down into para toluenesulfonamide (p TSA) and unlike other chlorine based disinfectants does not form harmful chlorinated compounds. Results of the Discharger's *C. dubia* test where the test animals were exposed to the toxicant for two hours followed by three exchanges of control water to remove residual compound and then observed

for 96 hours determined the NOEC and LOEC to be 86.3 and 187 mg/L respectively. Based on available information regarding Chloramine-T when used according to the reported treatment, Chloramine-T is not discharged at levels that cause, have the reasonable potential to cause, or will contribute to an excursion of Basin Plan narrative water quality objectives for toxicity. Accordingly, this Order does not include water quality-based effluent limitations for Chloramine-T.

xi. *Acetic Acid.* Acetic acid is used in conjunction with copper flushes to help put the copper sulfate into solution. However, the Discharger discontinued the use of copper sulfate. Acetic acid may also potentially be used by the Discharger as a “flush” treatment in raceways for the control of external parasites on fish. The Basin Plan contains water quality objectives for pH in the form of a range of acceptable pH values (measured in standard units). Since acetic acid will lower the pH of the water the Regional Board has included an effluent limit for pH. Monthly use of acetic acid must be reported as specified in the attached Monitoring and Reporting Program.

xii. *Copper Sulfate.* Copper sulfate is no longer used at this facility though effluent limits are included in the permit for completeness. Copper, primarily in the forms of copper sulfate and chelated copper compounds, is used in fish hatcheries to control the growth of external parasites and bacteria on fish and to control algae and other vegetation that is susceptible to the toxic effects of copper uptake.

The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. A discussion of allowable effluent copper concentrations is given in the priority pollutants – metals section of this fact sheet and summarized in table F-4.

The Basin Plan contains specific acute limits for dissolved copper in the Sacramento River and its tributaries above State Highway 32 bridge at Hamilton City. The maximum dissolved concentration of copper in the Sacramento River and its tributaries above State Highway 32 bridge at Hamilton City is:

$$Cu = e^{(0.905)(\ln \text{ hardness}) - 1.612} \mu\text{g/L}$$

For 26 mg/L hardness, the maximum (acute) dissolved copper limit is 3.8 µg/L based on the Basin Plan limitations. Converting to a total concentration using the EPA’s default conversion factor of 0.96 results in a Basin Plan criterion of 3.9 µg/L as total recoverable. The acute limitation in the Basin Plan is equal to the acute limitation in the CTR, in this instance.

Based on the calculated concentration as well as the actual measurements during treatments, the copper concentration in the effluent has a reasonable potential to exceed the water quality objective. Therefore, this Order includes

both maximum daily and average monthly effluent limitations for copper.

The last reported use of copper sulfate at the facility was in March 2003. A total of 8.27 pounds of copper sulfate was used in 2003 at the Facility. The prescribed maximum usage is 240 grams per raceway. At the minimum flow through the Facility, and with the maximum use of copper sulfate per raceway, the calculated concentration in a five-hour discharge would be 32.1 µg/L total copper at Discharge 001. The Discharger conducted monitoring in 2003, taking grab samples during three copper treatments. The maximum reported concentration was 34.6 µg/L total copper in Discharge 001 during the three copper treatments of one raceway at a time. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. An AMEL and MDEL for total copper of 1.9 µg/L and 3.9 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (See Attachment H for WQBEL calculations). As noted above, copper sulfate is used for disease control at the facility.

4. WQBEL Calculations

- a. This Order includes WQBELs for copper. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Table F-4 below for the WQBEL calculation.
- b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$$\begin{array}{ll} ECA = C + D(C - B) & \text{where } C > B, \text{ and} \\ ECA = C & \text{where } C \leq B \end{array}$$

where:

ECA = effluent concentration allowance
D = dilution credit
C = the priority pollutant criterion/objective
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECAs based on MCLs, which implement the Basin Plan's chemical constituents objective and are applied as annual

averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

- c. **Basin Plan Objectives and MCLs.** For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.
- d. **Aquatic Toxicity Criteria.** WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTA_{acute} and LTA_{chronic}) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.
- e. **Human Health Criteria.** WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs are set equal to the AMEL and a statistical multiplier was used to calculate the MDEL.

$$\begin{aligned}
 AMEL &= mult_{AMEL} \left[\min \left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic} \right) \right] \\
 MDEL &= mult_{MDEL} \left[\min \left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}} \right) \right] \\
 MDEL_{HH} &= \left(\frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}
 \end{aligned}$$

where:

$mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL

$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL

MA = statistical multiplier converting acute ECA to LTA_{acute}

MC = statistical multiplier converting chronic ECA to LTA_{chronic}

- (1) Water quality-based effluent limitations were calculated for copper are included in Attachment H.

Table F-7. Summary of Water Quality-based Effluent Limitations – Discharge Points 001 and 002

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	standard units	--	--	6.0	9.0
Settleable Matter	ml/L	0.1	0.2	--	--
Copper (Total Recoverable)	µg/L	1.9	3.9	--	--
Formaldehyde ¹	mg/L	0.65	1.3	--	--
Chloride	mg/L	106	--	--	--
	lbs/day ²	12,200	--	--	--

1 The maximum 8-hour formaldehyde limitation shall not exceed 8.0 mg/L.

2 Based on a design flow of 13.8 mgd.

5. Whole Effluent Toxicity (WET) – Not Applicable

The Basin Plan specifies a narrative objective for toxicity, requiring that “*All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration and/or other appropriate methods as specified by the Regional Water Board. The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for “experimental water” as defined in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, et al. 1992).

In addition to the Basin Plan requirements, Section 4 of the SIP states that a chronic toxicity effluent limitation is required in permits for all discharges that will cause, have the reasonable potential to cause, or contribute to chronic toxicity in receiving waters.

Numeric water quality criteria, or Basin Plan numeric objectives currently are not available for many of the aquaculture drugs and chemicals used by aquaculture facilities. Therefore, the Regional Water Board uses the narrative water quality objective for toxicity from the Basin Plan as a basis for determining “reasonable potential” for discharges of these drugs and chemicals. USEPA’s *Technical Support Document Water Quality-based Toxics Control* (TSD) specifies two toxicity measurement techniques that can be employed in effluent characterization; the first is Whole Effluent Toxicity (WET) testing, and the second is chemical-specific toxicity analyses. WET requirements protect the receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach allows for protection of the narrative “*no toxics in toxic amounts*” criterion while implementing numeric criteria for toxicity. There are two types of WET tests: acute and chronic. An acute toxicity test is conducted over a short time period and generally measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth. For fish hatcheries WET testing is used most appropriately when the toxic constituents in an effluent are not completely known; whereas chemical-specific analysis is more appropriately used when an effluent contains only one, or very few, well-known constituents.

Due to the nature of operations at the Facility, its effluent is very consistent. Inputs into the system are limited to source water from the Big Springs Creek, feed, and, occasionally, therapeutents. Therefore, the Regional Water Board is using a chemical-specific approach to determine “reasonable potential” for discharges of

aquaculture drugs and chemicals. As such it is not necessary to include an acute toxicity effluent limitation or require acute or chronic WET testing.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations.

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g. CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

2. Averaging Periods for Effluent Limitations

40 CFR 122.45(D) requires maximum daily and average monthly discharge limitations for all dischargers other than publicly owned treatment works unless impracticable. This Order conforms to this requirement.

3. Satisfaction of Anti-Backsliding Requirements.

All effluent limitations in this Order are at least as stringent as the effluent limitations in the existing Order.

4. Satisfaction of Antidegradation Policy

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

Table F-8. Summary of Final Effluent Limitations – Discharge Points 001 and 002

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	--	13.8	--	--
pH	standard units	--	--	6.0	9.0
Total Suspended Matter	mg/L	5	15	--	--
	lbs/day ¹	580	1,730	--	--
Settleable Matter	ml/L	0.1	0.2	--	--
Copper (Total Recoverable)	µg/L	1.9	3.9	--	--
Formaldehyde	mg/L	0.65	1.3	--	--
Chloride	mg/L	106	--	--	--
	lbs/day ¹	12,200	--	--	--

¹ Based on a design flow of 47.3 mgd.

The Discharger shall minimize the discharge of Total Suspended Solids to no greater than the ELG through implementing best management practices established in Special Provision VI.C.3 of this Order.

E. Interim Effluent Limitations – Copper

The SIP, section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Water Board shall establish interim requirements and dates for their achievement in the NPDES permit. Interim limitations must be based on current facility performance or existing permit limitations whichever is more stringent. The State Water Board has held that the SIP may be used as guidance for non-CTR constituents.

Cease and Desist order No. R5-2004-0117 was adopted concurrently with the previous NPDES permit for this Facility. The Cease and Desist order allowed for an interim daily maximum total recoverable copper limit of 107.6 µg/L until 1 September 2009. The Discharger has demonstrated they do not need to use copper sulfate under normal operating conditions as they have not used copper sulfate since March 2003. Due to the short time period between adoption of this permit and the current 1 September 2009 compliance deadline and the achievement of compliance since March 2003, there does not appear to be a pressing need to include interim copper limitations in this permit.

F. Land Discharge Specifications – Discharge Point 003

Percolation pond freeboard shall not be less than one foot (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the pond, no overflow of the pond occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event. A one-foot freeboard standard was selected because the

Discharger controls the influent to the pond with the exception of direct precipitation, and wave action does not appear to be a problem.

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, diazinon, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, turbidity, and electrical conductivity.

Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rational for these numeric receiving surface water limitations are as follows:

- a. **Bacteria.** The Basin Plan includes a water quality objective that “[i]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the

total number of samples taken during any 30-day period exceed 400/100 ml.”

Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective.

- b. **Biostimulatory Substances.** The Basin Plan includes a water quality objective that “[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for biostimulatory substances are included in this Order and are based on the Basin Plan objective.
- c. **Color.** The Basin Plan includes a water quality objective that “[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses.” Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.
- d. **Chemical Constituents.** The Basin Plan includes a water quality objective that “[W]aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.
- e. **Dissolved Oxygen.** Lake Siskiyou has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD applies to Lake Siskiyou, a receiving water limitation of 7.0 mg/L is included in this Order.

For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that “...the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.” This objective was included as a receiving water limitation in this Order.

- f. **Floating Material.** The Basin Plan includes a water quality objective that “[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.
- g. **Oil and Grease.** The Basin Plan includes a water quality objective that “[W]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.” Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.

- h. **pH.** The Basin Plan includes water quality objective that “[T]he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses”. This Order includes receiving water limitations for both pH range and pH change.

The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered appropriate and a monthly averaging period for determining compliance with the 0.5 receiving water pH limitation is included in this Order.

- i. **Pesticides.** The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.
- j. **Diazinon.** The Basin Plan includes a water quality objective that “[B]eginning July 1, 2008, (i) the direct or indirect discharge of diazinon into the Sacramento and Feather Rivers is prohibited if, in the previous year (July-June), any exceedance of the diazinon water quality objectives occurred, and (ii) the direct or indirect discharge of diazinon into any sub-watershed (identified in Table IV-7) is prohibited if, in the previous year (July-June), the load allocation was not met in that subwatershed. Prohibition (i) applies only to diazinon discharges that are tributary to or upstream from the location where the water quality objective was exceeded. These prohibitions do not apply if the discharge of diazinon is subject to a waiver of waste discharge requirements implementing the water quality objectives and load allocations for diazinon for the Sacramento and Feather Rivers, or governed by individual or general waste discharge requirements.” Receiving Water Limitations for diazinon are included in this Order and are based on the Basin Plan objective.
- k. **Radioactivity.** The Basin Plan includes a water quality objective that “[R]adionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.” The Basin Plan states further that “[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations...” Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.
- l. **Salinity.** The Basin Plan includes a requirement that the electrical conductivity value not exceed 230 micromhos/cm (50th percentile) or 235 (90th percentile) at Knights Landing above Colusa Drain in the Sacramento River.

- m. **Sediment.** The Basin Plan includes a water quality objective that “[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses” Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.
- n. **Settleable Material.** The Basin Plan includes a water quality objective that “[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.” Receiving Water Limitations for settleable material are included in this Order and are based on the Basin Plan objective.
- o. **Suspended Material.** The Basin Plan includes a water quality objective that “[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.
- p. **Taste and Odors.** The Basin Plan includes a water quality objective that “[W]ater shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.” Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.
- q. **Temperature.** Lake Siskiyou has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that “[a]t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature.” This Order includes a receiving water limitation based on this objective.
- r. **Toxicity.** The Basin Plan includes a water quality objective that “[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.
- s. **Turbidity.** The Basin Plan includes a water quality objective that “[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:
- Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.

- *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
- *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
- *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.”*

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply (MUN), industrial service supply (IND), industrial process supply (PRO), and agricultural supply (AGR).
2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 ml. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.
3. Domestic sewage from the hatchery buildings and private residences is discharged to septic tank/leachfield systems. Hatchery Building B and the shop have separate septic tanks with a common leachfield. The museum and an adjacent residence share a common septic tank/leachfield. The private residence adjacent to Pond X has its own septic tank/leachfield. The remaining five residences and meat house have three septic tanks serviced by a common leachfield. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

This permit does not allow degradation of groundwater quality to occur as a result of disposal to the percolation pond. If degradation is detected, this permit may be reopened to establish appropriate groundwater limits.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E), of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for the Facility.

A. Influent Monitoring

1. Influent monitoring is required for total suspended solids, settleable solids, and pH where there is a discharge from Discharges 001, 002 or 003. Influent suspended solids and settleable solids will be subtracted from the effluent concentrations to calculate the net increase. Hardness, pH, and copper (as total and dissolved) monitoring are required during periods when copper sulfate is used at the Facility. Annual monitoring for total ammonia, total nitrogen, and total phosphorous is required during the month of maximum fish production to provide the basis for net increases in the discharges.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving water.
2. Effluent monitoring for flow, formaldehyde, copper, hardness, total suspended solids, settleable solids, pH, and hardness has been retained from the previous Order to determine compliance with effluent limitations for these parameters.
3. Effluent monitoring for specific conductance is required monthly when salt is added to waters of the Facility. Monitoring for hardness, pH, and copper (as total and dissolved) is required when copper sulfate is utilized for treatments. Monitoring for formaldehyde is required when formalin is utilized. Annual monitoring for total ammonia, total nitrogen, and total phosphorous is required during the month of maximum fish production.

C. Whole Effluent Toxicity Testing Requirements – Not Applicable

D. Receiving Water Monitoring

1. Surface Water

Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

2. Groundwater

Groundwater monitoring is not required in this permit.

E. Other Monitoring Requirements

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42.

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

B. Special Provisions

1. Reopener Provisions

- a. This provision allows the Regional Water Board to re-open this Order to include any newly adopted receiving water standards.
- b. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including the following:
 - (i) When standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision. Therefore, if more or less stringent applicable water quality standards are promulgated or approved pursuant to section 303 of the Federal Water Pollution Control Act or amendments thereto, the

Regional Water Board will revise and modify this Order in accordance with such more or less stringent standards.

- (ii) When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

2. Special Studies and Additional Monitoring Requirements

Provision VI.C.2.a, Chemical and Aquaculture Drug Reporting Requirements.

As described in Section IV.B.1 of this Fact Sheet, the final ELG includes the following reporting and narrative requirements for CAAP facilities that are subject to 40 CFR Part 451:

- Must notify the permitting authority of the use of any investigational new animal drug (INAD) and any extra-label drug use where the use may lead to a discharge to waters of the United States.
- Reporting requirement for failure in or damage to the structure of an aquatic animal containment system, resulting in an unanticipated material discharge of pollutant to waters of the United States.
- Develop and maintain a best management practice (BMP) plan for solids control, material storage, structural maintenance, record keeping, and training.

Prior to using any new chemical or aquaculture drug at the Facility, the Discharger is required to submit to the Regional Water Board a RWD and be issued waste discharge requirements and/or NPDES permit authorizing the discharge. The RWD must contain the reporting and toxicity testing of the new chemical or aquaculture drug as specified in Section VI.C.2.a of this Order. These reporting and toxicity testing requirements are needed for the Regional Water Board to determine if the discharge of a new drug or chemical by the Facility has reasonable potential to cause, or contribute to an in-stream excursion above any chemical-specific water quality criteria, narrative water quality objective for chemical constituents from the Basin Plan, or narrative water quality objective for toxicity from the Basin Plan.

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for salinity is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Wagon and Cold Creeks..
- b. **Provision VI.C.3, Best Management Practices.** Best Management Practices plan requirements are established based on requirements in Effluent Limitations Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category at 40 CFR 451. CAAP

facilities that are subject to the federal ELG are required to develop and maintain a BMP plan that address the following requirements: solids control, material storage, structural maintenance, record-keeping, and training. The Discharger must make the BMP plan available to the Regional Water Board upon request, and submit certification that the BMP plan has been developed.

c. CWC section 13263.3(d)(2) Pollution Prevention Plans – Not Applicable.

4. Construction, Operation, and Maintenance Specifications

Provisions VI.C.4.a, Solid waste disposal provisions in this Order are based on the requirements of CCR Title 27 and prevention of unauthorized discharge of solid wastes into waters of the United States or waters of the State. Other construction, operation, and maintenance specifications are to prevent other unauthorized discharges to waters of the United States or waters of the State.

5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

6. Other Special Provisions – Not Applicable

7. Compliance Schedules – Not Applicable

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through physical and electronic posting.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5 p.m. on 5 July 2009.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: 13/14August 2009
Time: 8:30 am
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is www.waterboards.ca.gov/centralvalley where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling 530-224-4845.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Kevin Kratzke at 530-224-4850.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Antimony	ug/L	0.10	--	6.0	--	--	14	4,300	--	6.00	No
Arsenic	ug/L	0.10	--	10.0	340	150	--	--	--	10.00	No
Beryllium	ug/L	0.10	--	4.0	--	--	--	Narrative	--	4.00	No
Cadmium	ug/L	0.06	--	0.13	0.97	0.84	--	Narrative	0.13	5.00	No
Chromium (III)	ug/L	1.1	--	67.6	567	67.6	--	Narrative	--	--	No
Chromium (VI)	ug/L	2.0	--	11	16	11	--	Narrative	--	50.0	No
Copper	ug/L	0.4 ³	--	2.9	3.9	2.9	1300	--	3.9	--	Yes ³
Lead	ug/L	0.10	--	0.56	14.3	0.56	--	Narrative	--	15.0	No
Mercury	ug/L	0.00073	--	0.050	--	--	0.050	0.051	--	2.0	No
Nickel	ug/L	0.20	--	16	148	16	610	4,600	--	100.0	No
Selenium	ug/L	0.50	--	5	20	5	--	Narrative	--	50.00	No
Silver	ug/L	0.12	--	0.39	0.39	--	--	--	--	--	No
Thallium	ug/L	0.20	--	1.7	--	--	1.7	6.3	--	2.00	No
Zinc	ug/L	1.8	--	11.3	38	38	--	--	11.3	--	No

General Note: All inorganic concentrations are given as a total recoverable.

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)

Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

-- = Not Available

ND = Non-detect

Footnotes:

(1) Hardness = 26 mg/L as CaCO₃ (May 2008)

(2) pH = 7.65 s.u.

(3) Copper can exceed the objectives when copper sulfate is used at the facility. The last use of copper sulfate at the facility was in March 2003 resulted in a maximum copper discharge concentration of 34.6 ug/L. When no copper sulfate is used, the maximum copper concentration is 0.4 ug/L. Copper sulfate is no longer used at the facility but the effluent limit is kept to comply with anti-backsliding requirements. There is no reasonable potential for copper exceedances when copper sulfate is not used at the facility.

ATTACHMENT H – CALCULATION OF WQBELS

		Most Stringent Criteria			Dilution Factors			HH Calculations			Aquatic Life Calculations									Final Effluent Limitations	
Parameter	Units	HH	CMC	CCC	HH	CMC	CCC	$ECA_{HH}=AMEL_{HH}$	$AMEL/MDEL_{HH}$ Multiplier	$MDEL_{HH}$	ECA_{ACUTE} MULTIPLIER	LTA_{ACUTE}	$ECA_{CHRONIC}$ MULTIPLIER	$LTA_{CHRONIC}$	LOWEST LTA	$AMEL_{95}$ MULTIPLIER	$AMEL_{AL}$	$MDEL_{99}$ MULTIPLIER	$MDEL_{AL}$	LOWEST AMEL	LOWEST MDEL
Copper, total	ug/L	1300	3.9	2.9	--	--	--	--	--	--	0.321	1.26	0.527	1.55	1.26	1.55	1.9	3.11	3.9	1.9	3.9

ATTACHMENT I – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

- I. Background.** Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.waterboards.ca.gov/iswp/index.html>). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Regional Water Board is requiring the following monitoring:
- A. Drinking water constituents.** Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.
 - B. Effluent and receiving water temperature.** This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.
 - C. Effluent and receiving water hardness and pH.** These are necessary because several of the CTR constituents are hardness and pH dependent.
 - D. Dioxin and furan sampling.** Section 3 of the SIP has specific requirements for the collection of samples for analysis of dioxin and furan congeners, which are detailed in Attachment J. **<Briefly, dischargers classified as minor must collect and analyze one wet season and one dry season sample.>** Pursuant to Section 13267 of the California Water Code, this Order includes a requirement for the Discharger to submit monitoring data for the effluent and receiving water as described in Attachment J.
- II. Monitoring Requirements.**
- A. <Monthly, Quarterly> Monitoring.** **<Monthly, quarterly>** priority pollutant samples shall be collected from the effluent and upstream

receiving water (EFF-001 and RSW-001) and analyzed for the constituents listed in Table I-1. **<Monthly, Quarterly>** monitoring shall be conducted for 1 year (**<12, 4>** consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Regional Water Board, during the fourth year of the permit term. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

B. Semi-annual Monitoring (dioxins and furans only). Semi-annual monitoring is required for dioxins and furans, as specified in Attachment J. The results of dioxin and furan monitoring shall be submitted to the Regional Water Board with the quarterly priority data at the completion of the Effluent and Receiving Water Characterization Study, and during the fourth year of the permit term.

C. Concurrent Sampling. Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.

D. Sample type. All effluent samples shall be taken as 24-hour flow proportioned composite samples. All receiving water samples shall be taken as grab samples.

Table I-1. Priority Pollutants

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
VOLATILE ORGANICS						
28	1,1-Dichloroethane	75343	Primary MCL	5	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	National Toxics Rule	0.057	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	Primary MCL	200	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	National Toxics Rule	0.6	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	National Toxics Rule	0.17	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	Taste & Odor	10	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	National Toxics Rule	0.38	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	Primary MCL	6	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	Calif. Toxics Rule	0.52	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	Public Health Goal	5	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	Taste & Odor	10	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	Primary MCL	0.5	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	Primary MCL	5	0.5	EPA 8260B
17	Acrolein	107028	Aquatic Toxicity	21	2	EPA 8260B
18	Acrylonitrile	107131	National Toxics Rule	0.059	2	EPA 8260B

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
19	Benzene	71432	Primary MCL	1	0.5	EPA 8260B
20	Bromoform	75252	Calif. Toxics Rule	4.3	0.5	EPA 8260B
34	Bromomethane	74839	Calif. Toxics Rule	48	1	EPA 8260B
21	Carbon tetrachloride	56235	National Toxics Rule	0.25	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	Taste & Odor	50	0.5	EPA 8260B
24	Chloroethane	75003	Taste & Odor	16	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	Aquatic Toxicity	122 (3)	1	EPA 8260B
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B
23	Dibromochloromethane	124481	Calif. Toxics Rule	0.41	0.5	EPA 8260B
27	Dichlorobromomethane	75274	Calif. Toxics Rule	0.56	0.5	EPA 8260B
36	Dichloromethane	75092	Calif. Toxics Rule	4.7	0.5	EPA 8260B
33	Ethylbenzene	100414	Taste & Odor	29	0.5	EPA 8260B
88	Hexachlorobenzene	118741	Calif. Toxics Rule	0.00075	1	EPA 8260B
89	Hexachlorobutadiene	87683	National Toxics Rule	0.44	1	EPA 8260B
91	Hexachloroethane	67721	National Toxics Rule	1.9	1	EPA 8260B
94	Naphthalene	91203	USEPA IRIS	14	10	EPA 8260B
38	Tetrachloroethene	127184	National Toxics Rule	0.8	0.5	EPA 8260B
39	Toluene	108883	Taste & Odor	42	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	Primary MCL	10	0.5	EPA 8260B
43	Trichloroethene	79016	National Toxics Rule	2.7	0.5	EPA 8260B
44	Vinyl chloride	75014	Primary MCL	0.5	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	Secondary MCL	5	0.5	EPA 8260B
	Trichlorofluoromethane	75694	Primary MCL	150	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	Primary MCL	1200	10	EPA 8260B
	Styrene	100425	Taste & Odor	11	0.5	EPA 8260B
	Xylenes	1330207	Taste & Odor	17	0.5	EPA 8260B
SEMI-VOLATILE ORGANICS						
60	1,2-Benzanthracene	56553	Calif. Toxics Rule	0.0044	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	National Toxics Rule	0.04	1	EPA 8270C
45	2-Chlorophenol	95578	Taste and Odor	0.1	2	EPA 8270C
46	2,4-Dichlorophenol	120832	Taste and Odor	0.3	1	EPA 8270C
47	2,4-Dimethylphenol	105679	Calif. Toxics Rule	540	2	EPA 8270C
49	2,4-Dinitrophenol	51285	National Toxics Rule	70	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	National Toxics Rule	0.11	5	EPA 8270C

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
55	2,4,6-Trichlorophenol	88062	Taste and Odor	2	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	USEPA IRIS	0.05	5	EPA 8270C
50	2-Nitrophenol	25154557	Aquatic Toxicity	150 (5)	10	EPA 8270C
71	2-Chloronaphthalene	91587	Aquatic Toxicity	1600 (6)	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	National Toxics Rule	0.04	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	Calif. Toxics Rule	0.0044	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	Aquatic Toxicity	30	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	National Toxics Rule	13.4	10	EPA 8270C
51	4-Nitrophenol	100027	USEPA Health Advisory	60	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	Aquatic Toxicity	122	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	Aquatic Toxicity	122 (3)	5	EPA 8270C
56	Acenaphthene	83329	Taste and Odor	20	1	EPA 8270C
57	Acenaphthylene	208968	No Criteria Available		10	EPA 8270C
58	Anthracene	120127	Calif. Toxics Rule	9,600	10	EPA 8270C
59	Benzdine	92875	National Toxics Rule	0.00012	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	No Criteria Available		5	EPA 8270C
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	No Criteria Available		5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	National Toxics Rule	0.031	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	Aquatic Toxicity	122 (3)	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	National Toxics Rule	1.8	3	EPA 8270C
70	Butyl benzyl phthalate	85687	Aquatic Toxicity	3 (7)	10	EPA 8270C
73	Chrysene	218019	Calif. Toxics Rule	0.0044	5	EPA 8270C
81	Di-n-butylphthalate	84742	Aquatic Toxicity	3 (7)	10	EPA 8270C
84	Di-n-octylphthalate	117840	Aquatic Toxicity	3 (7)	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
79	Diethyl phthalate	84662	Aquatic Toxicity	3 (7)	2	EPA 8270C
80	Dimethyl phthalate	131113	Aquatic Toxicity	3 (7)	2	EPA 8270C
86	Fluoranthene	206440	Calif. Toxics Rule	300	10	EPA 8270C
87	Fluorene	86737	Calif. Toxics Rule	1300	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	Taste and Odor	1	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	Calif. Toxics Rule	0.0044	0.05	EPA 8270C
93	Isophorone	78591	National Toxics Rule	8.4	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	National Toxics Rule	5	1	EPA 8270C

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
96	N-Nitrosodimethylamine	62759	National Toxics Rule	0.00069	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	Calif. Toxics Rule	0.005	5	EPA 8270C
95	Nitrobenzene	98953	National Toxics Rule	17	10	EPA 8270C
53	Pentachlorophenol	87865	Calif. Toxics Rule	0.28	0.2	EPA 8270C
99	Phenanthrene	85018	No Criteria Available		5	EPA 8270C
54	Phenol	108952	Taste and Odor	5	1	EPA 8270C
100	Pyrene	129000	Calif. Toxics Rule	960	10	EPA 8270C
INORGANICS						
	Aluminum	7429905	Ambient Water Quality	87	50	EPA 6020/200.8
1	Antimony	7440360	Primary MCL	6	5	EPA 6020/200.8
2	Arsenic	7440382	Ambient Water Quality	0.018	0.01	EPA 1632
15	Asbestos	1332214	National Toxics Rule/ Primary MCL	7 MFL	0.2 MFL >10um	EPA/600/R-93/116(PCM)
	Barium	7440393	Basin Plan Objective	100	100	EPA 6020/200.8
3	Beryllium	7440417	Primary MCL	4	1	EPA 6020/200.8
4	Cadmium	7440439	Public Health Goal	0.07	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	Primary MCL	50	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	Public Health Goal	0.2	0.5	EPA 7199/1636
6	Copper	7440508	National Toxics Rule	4.1 (2)	0.5	EPA 6020/200.8
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300
	Iron	7439896	Secondary MCL	300	100	EPA 6020/200.8
7	Lead	7439921	Calif. Toxics Rule	0.92 (2)	0.5	EPA 1638
8	Mercury	7439976	TMDL Development		0.0002 (11)	EPA 1669/1631
	Manganese	7439965	Secondary MCL/ Basin Plan Objective	50	20	EPA 6020/200.8
9	Nickel	7440020	Calif. Toxics Rule	24 (2)	5	EPA 6020/200.8
10	Selenium	7782492	Calif. Toxics Rule	5 (8)	5	EPA 6020/200.8
11	Silver	7440224	Calif. Toxics Rule	0.71 (2)	1	EPA 6020/200.8
12	Thallium	7440280	National Toxics Rule	1.7	1	EPA 6020/200.8
	Tributyltin	688733	Ambient Water Quality	0.063	0.002	EV-024/025
13	Zinc	7440666	Calif. Toxics Rule/ Basin Plan Objective	54/ 16 (2)	10	EPA 6020/200.8
PESTICIDES - PCBs						
110	4,4'-DDD	72548	Calif. Toxics Rule	0.00083	0.02	EPA 8081A
109	4,4'-DDE	72559	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
108	4,4'-DDT	50293	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
112	alpha-Endosulfan	959988	National Toxics Rule	0.056 (9)	0.02	EPA 8081A

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
103	alpha-Hexachlorocyclohexane (BHC)	319846	Calif. Toxics Rule	0.0039	0.01	EPA 8081A
	Alachlor	15972608	Primary MCL	2	1	EPA 8081A
102	Aldrin	309002	Calif. Toxics Rule	0.00013	0.005	EPA 8081A
113	beta-Endosulfan	33213659	Calif. Toxics Rule	0.056 (9)	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	Calif. Toxics Rule	0.014	0.005	EPA 8081A
107	Chlordane	57749	Calif. Toxics Rule	0.00057	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	No Criteria Available		0.005	EPA 8081A
111	Dieldrin	60571	Calif. Toxics Rule	0.00014	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	Ambient Water Quality	0.056	0.05	EPA 8081A
115	Endrin	72208	Calif. Toxics Rule	0.036	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	Calif. Toxics Rule	0.76	0.01	EPA 8081A
117	Heptachlor	76448	Calif. Toxics Rule	0.00021	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	Calif. Toxics Rule	0.0001	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	Calif. Toxics Rule	0.019	0.019	EPA 8081A
119	PCB-1016	12674112	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
120	PCB-1221	11104282	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
121	PCB-1232	11141165	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
122	PCB-1242	53469219	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
123	PCB-1248	12672296	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
124	PCB-1254	11097691	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
125	PCB-1260	11096825	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
126	Toxaphene	8001352	Calif. Toxics Rule	0.0002	0.5	EPA 8081A
	Atrazine	1912249	Public Health Goal	0.15	1	EPA 8141A
	Bentazon	25057890	Primary MCL	18	2	EPA 643/515.2
	Carbofuran	1563662	CDFG Hazard Assess.	0.5	5	EPA 8318
	2,4-D	94757	Primary MCL	70	10	EPA 8151A
	Dalapon	75990	Ambient Water Quality	110	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	Public Health Goal	0.0017	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	USEPA IRIS	30	5	EPA 8270C
	Dinoseb	88857	Primary MCL	7	2	EPA 8151A
	Diquat	85007	Ambient Water Quality	0.5	4	EPA 8340/549.1/HPLC
	Endothal	145733	Primary MCL	100	45	EPA 548.1
	Ethylene Dibromide	106934	OEHHA Cancer Risk	0.0097	0.02	EPA 8260B/504
	Glyphosate	1071836	Primary MCL	700	25	HPLC/EPA 547

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
	Methoxychlor	72435	Public Health Goal	30	10	EPA 8081A
	Molinate (Ordram)	2212671	CDFG Hazard Assess.	13	2	EPA 634
	Oxamyl	23135220	Public Health Goal	50	20	EPA 8318/632
	Picloram	1918021	Primary MCL	500	1	EPA 8151A
	Simazine (Princep)	122349	USEPA IRIS	3.4	1	EPA 8141A
	Thiobencarb	28249776	Basin Plan Objective/ Secondary MCL	1	1	HPLC/EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	Calif. Toxics Rule	1.30E-08	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	Ambient Water Quality	10	1	EPA 8151A
	Diazinon	333415	CDFG Hazard Assess.	0.05	0.25	EPA 8141A/GCMS
	Chlorpyrifos	2921882	CDFG Hazard Assess.	0.014	1	EPA 8141A/GCMS
OTHER CONSTITUENTS						
	Ammonia (as N)	7664417	Ambient Water Quality	1500 (4)		EPA 350.1
	Chloride	16887006	Agricultural Use	106,000		EPA 300.0
	Flow			1 CFS		
	Hardness (as CaCO ₃)			5000		EPA 130.2
	Foaming Agents (MBAS)		Secondary MCL	500		SM5540C
	Nitrate (as N)	14797558	Primary MCL	10,000	2,000	EPA 300.0
	Nitrite (as N)	14797650	Primary MCL	1000	400	EPA 300.0
	pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140	USEPA IRIS	0.14		EPA 365.3
	Specific conductance (EC)		Agricultural Use	700 umhos/cm		EPA 120.1
	Sulfate		Secondary MCL	250,000	500	EPA 300.0
	Sulfide (as S)		Taste and Odor	0.029		EPA 376.2
	Sulfite (as SO ₃)		No Criteria Available			SM4500-SO3
	Temperature		Basin Plan Objective	°F		
	Total Dissolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

- (1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses. Available technology may require that effluent limits be set lower than these values.
- (2) - Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. Values displayed correspond to a total hardness of 40 mg/L.
- (3) - For haloethers
- (4) - Freshwater aquatic life criteria for ammonia are expressed as a function of pH and temperature of the water body. Values displayed correspond to pH 8.0 and temperature of 22°C.
- (5) - For nitrophenols.
- (6) - For chlorinated naphthalenes.

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		

(7) - For phthalate esters.

(8) - Basin Plan objective = 2 ug/L for Salt Slough and specific constructed channels in the Grassland watershed.

(9) - Criteria for sum of alpha- and beta- forms.

(10) - Criteria for sum of all PCBs.

(11) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include:

Method 1669: Sampling Ambient Water for Trace Metals at USEPA Water Quality Criteria Levels, USEPA; and

Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence, USEPA

III. Additional Study Requirements

A. Laboratory Requirements. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code 13176 and must include quality assurance/quality control data with their reports (ELAP certified).

B. Criterion Quantitation Limit (CQL). The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the SIP or the detection limits for purposes of reporting (DLRs) below the controlling water quality criterion concentrations summarized in Table I-1 of this Order. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Table I-1 contains suggested analytical procedures. The Discharger is not required to use these specific procedures as long as the procedure selected achieves the desired minimum detection level.

C. Method Detection Limit (MDL). The method detection limit for the laboratory shall be determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).

D. Reporting Limit (RL). The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.

E. Reporting Protocols. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

1. Sample results greater than or equal to the reported RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

2. Sample results less than the reported RL but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified" or DNQ. The estimated chemical concentration of the sample shall also be reported.

3. For the purposes of data collection the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may shortened to "Est Conc"). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (+ or – a percentage of the reported value), numerical ranges (low and high), or any other means considered appropriate by the laboratory.

4. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

F. Data Format. The monitoring report shall contain the following information for each pollutant:

1. The name of the constituent.
2. Sampling location.
3. The date the sample was collected.
4. The time the sample was collected.
5. The date the sample was analyzed. For organic analyses, the extraction data will also be indicated to assure that hold times are not exceeded for prepared samples.
6. The analytical method utilized.
7. The measured or estimated concentration.
8. The required Criterion Quantitation Limit (CQL).
9. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).
10. The laboratory's lowest reporting limit (RL).
11. Any additional comments.